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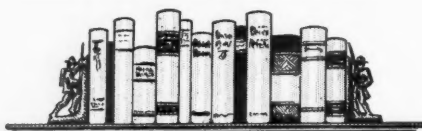
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Organized November 9, 1885

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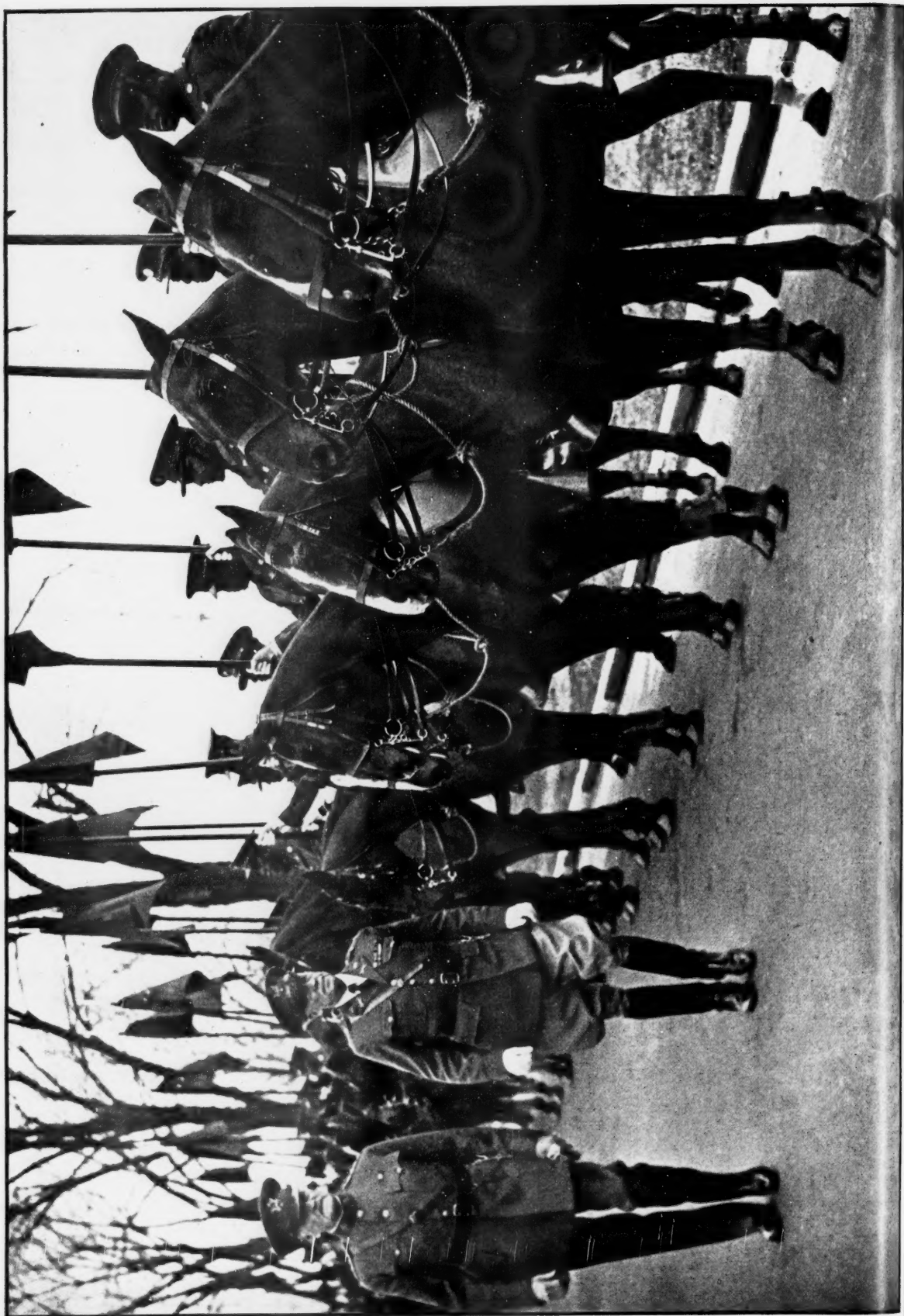
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THE CAVALRY JOURNAL

VOL. XLI

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No. 170

The Trend of Organization and Equipment of Cavalry in the Principal World Powers and Its Probable Rôle in Wars of the Near Future

By Major General Guy V. Henry, Chief of Cavalry

IF I were discussing the organization, tactics and powers and limitations of infantry or artillery my readers, either at home or abroad, cavalymen or noncavalymen, would have nearly the same mental picture of my subject; but when I write on cavalry my readers have no such uniform mental picture. The reason for this is that infantry and artillery are fairly uniform in the armies of the world. Such, however, is not the case with cavalry. The cavalries of various armies are armed in a radically different manner, ranging from those whose horse elements are merely reconnaissance groups, carrying saber or lance and an ineffective carbine, to the heavily-armed United States Army Cavalry. This carries on its horses alone a greater small arms fire per man when engaged in dismounted combat than does most infantry.

American Cavalry, (because of its ability and tendency to fight dismounted), was classed by pre-war European standards as "mounted infantry." A similar classification pertains today in a less degree where purely mounted elements of our own and foreign cavalries are concerned.

Due to these differences, military men of different countries have no common conception of what basically constitutes cavalry; therefore in studying their writ-

mounted firepower carried on its horses alone and little tradition for the use of the *arme blanche*.

This different basic viewpoint added to the fact that in no two armies is cavalry armed or organized alike, is largely responsible for the differences of opinion expressed and the exaggerated statements of some, that cavalry is a thing of the past.

If cavalry is less important today than it has been in the past, of what are we speaking? No one knows, for there is no standardized conception of cavalry.

All military men agree that with present means of rapid transportation, communication, air service and long-range fire, an army needs now more than ever before some force capable under modern conditions of efficiently performing the textbook rôle, now and in past wars, allotted to horse cavalry. That horse cavalry as heretofore armed, equipped and trained cannot always perform with maximum efficiency this rôle under modern conditions, is equally agreed; therefore all nations are more or less seriously engaged in providing some force that will. To provide such a force will be a process of evolution, but I prophesy that within ten years military thought will be as crystallized on this line as it is on the infantry of today. When it crystallizes we will and must have a highly mobile force, capable of independent action and able to close with the enemy. These are the characteristics essential for the security, information, detached independent duties and the mobile reserve forces of a modern army,—in other words these are the characteristics of modern cavalry whose armament, organization and means of transportation must be adapted thereto.

Let us now see what the various armies of the world think on cavalry, what they are doing to reorganize it, and then deduce what will be its rôle and armament in the wars of the near future.

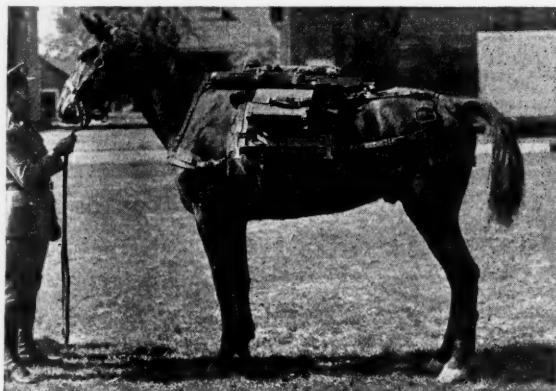
I will take Great Britain and France first, as these two countries have progressed farthest in mechanization and reorganization.

Great Britain.

The British Cavalry consists of 22 regiments; of these, two have been converted into armored car regiments. The horse regiments are armed and equipped much as is American Cavalry, except that there are attached thereto a number of Austin scout cars and their machine gun squadron (troop) is mechanized.

The conversion of these two horse regiments into armored car regiments seems to be as far as Great Britain has gone in the mechanization of horse cavalry.

The Secretary of State for War recently made the following statement in Parliament:



(Photo by Signal Corps, U. S. Army)

Cavalry Heavy Machine Gun, U. S. Army. Average Time Into Action From a Gallop, 20 Seconds

ings one should try to obtain the author's basic conception of cavalry—knowing this one can more justly evaluate his writings.

Broadly speaking, in European armies the term "Cavalry" means mounted troops possessing great mobility, little dismounted firepower carried on its horses alone and past traditions for use of the *arme blanche*; while in the United States Army it means mounted troops possessing great mobility, heavy dis-

"Mechanization is being carried on with due caution. When a type can be fixed and its efficiency thoroughly proved, then it will be time to build up a stock. Until the War Office is convinced that horses can be dispensed with absolutely, the cavalry will remain as at present."

However, the above does not mean that Great Britain has not experimented extensively with mechanization; for, on the contrary, she has experimented more extensively than any other nation.

The British divide their troops into:

- a. Mobile Troops.
 - (1). Cavalry brigades and cavalry divisions.
 - (2). Light armed brigades.
- b. Combat Troops.
 - (1). Infantry divisions.
 - (2). Medium armored brigades.

Thus she links the rôle of light armored brigades with cavalry (organized as at present).

A light armored brigade consists of:

- Headquarters and Signal Section.
- Two or three battalions of light tanks.
- One close support tank battery.
- One armored antiaircraft battery.
- One armored car regiment if necessary.

This linking together of light armored brigades and horse cavalry is also expressed by Sir David Campbell, G. O. C. M. C., Aldershot Command, in the 1930 winter maneuvers: "Cavalry and armored fighting vehicles are complementary to one another. Cavalry is immeasurably superior for reconnaissance; armored fighting vehicles have offensive power. It follows that both types of mobile troops should be used together. There may be exceptions to this rule, but a commander would be justified in using his armored fighting vehicles alone only when time is of vital importance, the distance involved too great for cavalry, and the importance of the object to be achieved compensating for the heavy losses to be expected in the armored fighting vehicles to which their inability to reconnoiter adequately must render them liable."

The above expresses the trend of British opinion from which we can deduce that for wars of the near future British cavalry will consist of armored car and horse regiments, the horse regiments with heavy firepower and both used in combination with light armored brigades. Light armored brigades will not be called cavalry, but with cavalry are classed as mobile troops and considered complementary one to the other.

France.

We recently had a very distinguished French soldier as guest of our nation at the Yorktown Sesquicentennial Celebration—Marshal Pétain.

Marshal Pétain has said: "During the course of battle, thanks to the modern increase in the firepower of cavalry, it may perform work of the most varied nature. Cavalry remains the favored arm for reconnaissance and screening before battle and for the exploitation of success after battle."

Another distinguished French soldier, General Weygand, says: "The rôle of cavalry far from being

diminished will appear on the morrow, if there is another war, as great as we deemed it to be in the past. It will hold its importance as long as speed and surprise hold their value on the field of battle."

As General Weygand is now vice president of the Superior War Council, we may well assume he will use his great influence to prepare the cavalry of the French Army to carry out his prophecy. It is therefore most interesting to study what France is doing in organization and armament of her cavalry.

France divides her cavalry into two classes: Cavalry Divisions and Divisional Cavalry. Divisional Cavalry are squadrons of horse cavalry permanently attached to the infantry divisions, primarily for close security purposes. The French cavalry division is now organized as follows:

Strength: 350 officers; 10,000 men.

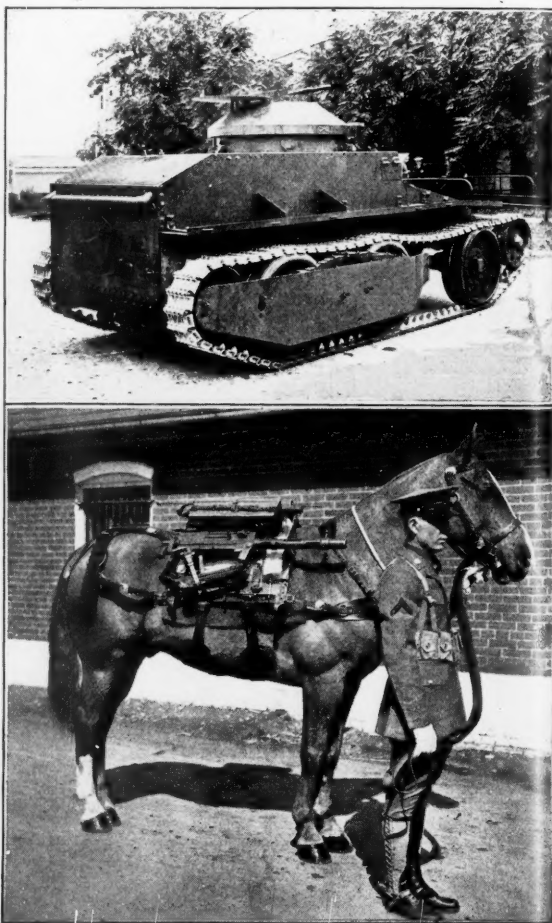
Headquarters.

Two horse brigades.

One Portée Dragoon Regiment (Squadron in Peace) (Riflemen transported in Kegresse-Citroen cross-country cars.)

One Regiment Field Artillery 75s. (horse).

One Group 105mm. Portée.



Above—Cavalry Combat Car, T-5, U. S. Army. Below—Cavalry Light Machine Gun, U. S. Army. (Average Time into Action from Gallop, 20 Seconds.)

One Regiment Armored Cars (36).

One Observation Squadron (air).

Sappers, Bridge, Supply and Medical Troops.

France has been greatly increasing the amount of mechanization and motorization within the cavalry division and places great reliance on the mechanical groups (Portée Dragoons) to increase the firepower of the horse elements. Recent maneuvers indicate that due to different rates of march, different cross-country ability of the two, and various other reasons, the combination of the two within the cavalry division is not satisfactory. Considering this and also the wonderful road net and the terrain in general in France's probable theater of operations, we may expect that she will probably in time completely mechanize some of her cavalry divisions. However, her cavalry for the near future will be a combination of mechanization and horse, and all information indicates that it will have a rôle similar to that of horse cavalry of the past. What final form its purely mechanized cavalry will take is not yet known, but we may be sure it will be equipped with the best cross-country vehicles available.

Germany.

The German Army is limited by the Versailles Treaty, as is its progress in mechanization. However, about 16% of such active army as Germany has is Cavalry. The percentage of cavalry in France and Great Britain is about 7%. Germany's 18 regiments

are armed with the saber, carbine and light machine gun carried by the trooper and heavy machine guns in pack. In no European army have the heavy machine guns in pack the mobility of similar guns in pack in the United States Army, nor do the individual troopers of any of these armies have the proficiency in the use of rifle and pistol that has the American soldier.

Due to the treaty restrictions on mechanization referred to above, we can only surmise what Germany would do towards re-equipping its cavalry if these restrictions were removed.

Lieutenant General Von Kaiser, (Recently Inspector General of Cavalry) has said: "Every new means of transportation appearing seems to be followed by a cry for doing away with the cavalry. Thus in a book which appeared in 1871 I found many persons considered cavalry superfluous, as they claimed the progress made in railway transportation was replacing it. Now it is the same with the motor. The truth is that the progress of technique in all branches of the service—including the cavalry—does not render existing arms superfluous, but improves them. In the case of cavalry the assignment to it of motorized troops is augmenting its possibilities."

General Von Seeckt (Recently Commander in Chief, German Army) writes: "The aviator has come to aid, not to replace cavalry. Close reconnaissance is left to the cavalry whose vision is not dimmed by clouded skies. In combination with airplanes, squadrons of cavalry find new employment."

"The motorization of armies is one of the most important questions of military development. It may be briefly pointed out that for the time being, roads, bridges, forests and mountains will oppose mass employment of motor vehicles."

The following extracts are taken from a recent publication: "Moderne Cavalerie" in which the author, General G. Brandt, Inspector General of Cavalry 1926-1931, gives his opinion of what Germany should do to modernize her cavalry:

"Modern warfare requires the presence of large bodies of cavalry."

"Today we require a cavalry with strong firepower, including light and heavy machine guns, and regimental antitank weapons. About their importance and necessity no words are spared. Whatever the desire is in this respect the factor that too many of these weapons might decrease mobility must be thought of. Countries having no limitations on equipment will transport them in first-class mechanized vehicles. These vehicles must be able to go across country."

"Cavalry needs for its support reconnaissance detachments of armored cars and light, rapid combat vehicles so armed that they can attack with ease hostile armored vehicles."

We can thus conclude that Germany believes in a heavy firepower horse cavalry to which she would attach armored fighting vehicles if not prevented by the Treaty of Versailles.

The probable rôle of such a cavalry seems laid down



Cavalry Trooper, U. S. Army. Arms—Rifle, Pistol and Saber



Cavalry Combat Car, T-1 (Christie), Entering a Bomb Crater



French Portée Dragoon Vehicle

in her various manuals and regulations. The latest of these show in general no change from the tasks allotted to cavalry in past wars.

The cavalries of Italy, Russia, Poland and Japan apparently have done little in the way of reorganization or rearmament since the termination of the World War; all have introduced, however, machine gun and armored car units into their cavalry organizations.

United States.

As previously stated, the term "Cavalry" in the United States has in the past implied primarily small arms firepower rapidly transported on horses. The horse has been used to bring this close to the enemy. When American cavalry dismounts it has the small arms firepower and combat efficiency, man for man, equal to that of infantry. Such is not true with the cavalries of other powers, but even with its above efficiency our horse cavalry is for conditions of today inadequately supplied with antiarmored vehicle and antiaircraft weapons, and armored cars. Its trains (transport) also lack the desired mobility. It is hoped that the necessary funds will soon be received to remedy these deficiencies.

The American Cavalry Division has a war strength of:

465 officers and 8,840 men, with an organization of—Headquarters and Headquarters Troop.

Two horse brigades of two regiments each.

One regiment of Field Artillery 75-mm. guns (horse).

One Armored Car squadron—36 cars.

One tank company (Infantry).

Proper proportions of Engineer, Ordnance, Signal, Medical and Quartermaster Corps troops.

Its offensive or defensive dismounted fire power, is that given by—

5,000 rifles.

8,500 pistols.

400 machine guns.

10 37-mm. guns.

24 75-mm. guns.

The Cavalry Division is a powerful, efficient force,

combining excellent mobility, firepower, independence of action and ability to close with the enemy. It should be noted that this division contains a limited amount of mechanization in its armored car squadron and tank company; but with a view of securing still greater mobility for cavalry by the application of modern machines to cavalry missions, the War Department has decided to completely mechanize one horse regiment, not to be a part of the above described division. The directive for this follows:

"a. The mechanization of one regiment is the first step in determining the application of modern machines to Cavalry missions in war and in developing the technique and basic tactical principles applicable to Cavalry in which the horse is replaced by machines.

"b. On favorable terrain, mechanized cavalry should extend the sphere of action of Cavalry to much greater distances and increase the speed of performance of its missions without, however, altering the accepted fundamental missions of that arm.

"c. When the development of one mechanized cavalry regiment reaches a satisfactory stage, other elements may be organized and supporting troops developed and attached for operations therewith."

The regiment in question will be stationed at Fort Knox, Kentucky, with a peace strength of 50 officers and 610 enlisted men.

To perform the missions of cavalry the regiment must have mobility, both road and cross-country; offensive and defensive power; possess the necessary requisites for independence of action and ability to close with the enemy. With these in view its organization will be as follows:

Headquarters and Headquarters Troop, containing the necessary administrative, supply, repair and communications personnel.

One Covering Squadron, consisting of one Armored Car Troop of 17 cars and one Scout Troop with 7 combat cars (light fast tanks) and 6 cross-country Personnel Carriers, transporting

8 .30-caliber machine guns with crews and 10 riflemen.

One Combat Car Squadron, consisting of two troops of 13 Combat Cars (light fast tanks) each.

One Machine Gun Troop, with 18 cross-country Personnel Carriers, transporting 24 .30-caliber machine guns with crews and 50 riflemen.

With this organization we have in the Covering Squadron an Armored Car Troop whose primary mission is reconnaissance, and in the Scout Troop an organization with sufficient offensive power in its combat cars and defensive or offensive power in its machine gun and rifleman platoon to cope with small parties of the enemy or for limited foot reconnaissance or security.

In the Combat Car Squadron we have an element of great offensive power, while in the Machine Gun Troop we have an element of considerable defensive or limited offensive power. The entire regiment will have extensive road and considerable cross-country mobility.

When this regiment is properly equipped it is the present intention to mechanize one more horse regiment and then form a mechanized brigade of a headquarters troop and the two regiments. This brigade will then be given a thorough test. How much more horse cavalry may be mechanized in the future only the result of this test, appropriations available, and time can tell.

In this development it must be remembered that troops transported in ordinary commercial road motor vehicles (portée troops) utterly lack the necessary mobility on poor roads or cross-country to perform the numerous duties required of cavalry—they are a poor substitute for either mechanization or horse.

The rôle of our combination cavalry (mechanized-horse) in wars of the near future will be the same as that laid down for our cavalry of today. *Each must be used in conjunction with but not tied to the other to obtain its maximum efficiency.* Both horse and mechanized cavalry will have their powers and limitations. The high command must know these and assign missions accordingly.

A few of the points to bear in mind in the employment of this mixed cavalry follow:

The rate of road march of horse and mechanized cavalry is very different; their cross-country rate will in general be about the same.

Mechanized cavalry will be far more road and ground sensitive than will be horse cavalry. The tactical use of terrain by and for both will be vastly more important than ever before.

Armored cars are reconnaissance elements, are excellent for distant reconnaissance and can be dispersed in small groups for this purpose. Horse cavalry is greatly superior to mechanized cavalry for close in reconnaissance and security purposes.

Combat cars (light fast tanks) are fighting elements and must concentrate for this purpose. Herein lies an essential difference between mechanized and horse

cavalry. While mechanized cavalry due to its road mobility may operate over great distances, it must concentrate at the moment of combat in order to make use of the shock power of its fast combat cars; while horse cavalry normally attacks and defends on a broad front.

Mechanized cavalry will be very dependent on a base of supply: while horse cavalry can and has lived, even in our recent campaigns, off the country for protracted periods.

Remembering these characteristics we may expect to see at the opening of a campaign, armored car units rushed to the front for distant reconnaissance with other mechanized cavalry units seizing and holding advanced positions—horse cavalry following by the most rapid means of transportation available.

As the opposing infantries approach each other, horse cavalry will be used to maintain continuous contact with the enemy and for screening and close in reconnaissance; while mechanized cavalry guards the flanks or is held awaiting a favorable opportunity justifying its employment.

During battle both classes of cavalry will guard the flanks of their own army, operate against the enemy's flanks or rear or be used as a mobile reserve. When used as a reserve mechanized cavalry will most likely operate in offensive combat alone or augment infantry tank units; while horse cavalry will act defensively or offensively to augment or replace infantry.

In breakthroughs both cavalries will be pushed forward as conditions warrant. In pursuit mechanized cavalry will be most useful for distant parallel pursuit and horse cavalry for the less distant parallel pursuit.

In retreat horse cavalry will be most useful in covering the direct retreat, while mechanized cavalry protects the flanks.

In zones of action horse cavalry should be assigned to terrain least suitable for mechanized cavalry.

I have only briefly indicated how these two types of cavalry both fulfill the missions of cavalry within their respective powers and limitations and how they should be used complementary one to the other. I am convinced that the War Department is right in incorporating completely mechanized units within our cavalry and also that we have today by tradition, armament and training, a most efficient horse cavalry.

Our cavalry officers are sincerely interested in mechanization.

With proper financial and official support they may be relied upon to develop efficient mechanized and horse cavalries suitable to our needs, and also to arrive at a correct balance between "mechanization" and "horse"—both manned by men of the same tactical training, quickness of thought, courage, élan, and determination to close with the enemy that for centuries has been the spirit of cavalry.

This accomplished it then remains for the high command to use that composite cavalry in such a manner that it may be able to acquit itself with maximum efficiency in any wars of the future.

The Cavalry*

Major General Lytle Brown, Chief of Engineers, United States Army

IN time of peace it is the fashion to predict what is going to happen in the next war, what is to be obsolete, what is to be the most effective, what this, that, or the other will accomplish, and, in general, how the war is to be won and lost.

Recently there has appeared in print an article ridiculing the performance of cavalry in the past.

To every student of war there appear in all wars of which we have record two forms of action. These are called, or have been called, fire action and shock action. The former is characterized by the throwing of missiles, and the latter by the coming of hand to hand, whether on foot or on horseback. Likewise, there have been recognized in all war two kinds of power in troops, both essential to fighting power, namely, fire power and mobility. We do know that the fire power of infantry and artillery has increased immeasurably in the days since Napoleon. The mobility of infantry and artillery has in general not increased at all. The mobility of cavalry still leaves it in its same relative position with the other arms, just as valuable in its special role as ever in the past. Let us review with a very wide, sweeping glance the past of the cavalry; review enough to enable us to appreciate that fact that it was not chivalry, imagination, *fal-de-rat*, or other nonsense that caused the eminent soldiers of the past to include mounted forces in their armies.

The time of Alexander the Great is about as far back as it seems necessary to go. He is generally recognized as one of the world's eminent soldiers. We have read that he displayed before his father, Philip of Macedon, quite a little flair for horsemanship. The name of his favorite horse is found in the records along with his own. The decisiveness of Alexander's victories rests not with the infantry phalanx, but with his cavalry. The phalanx cracked the opposing force into fragments, his cavalry ground those fragments to dust. Great soldiers are only those who destroy their enemies by a proper combination of the means at hand, or who destroy all resistance by making further resistance an invitation to inevitable destruction. Alexander was such a one, and has therefore been called "The Great."

Hannibal is generally considered to have been a great soldier. Considering the fact that the enemy he had to combat was probably the staunchest body of fighting men that this world has ever seen, some believe that Hannibal, the Carthaginian, was the greatest military genius that ever lived. He and his father before him studied deeply both the strength and the weakness of the Roman legion, an organization so famous in history as to give its name to any body signifying strength, numbers, solidarity. Nothing

in the ancient world could stand the forward lunge of the Roman legion. Its sustained fighting power was unequaled by any other organization of its time. Its superiority was resident in the moral qualities of the Roman soldier, in iron discipline, and in a deep formation which gave a reservoir for the fighting front that fed it continuously with fresh force, increasing in toughness, durability, and skill to the very end. Last into action came the *Triarii*, tried soldiers whom no terror could daunt, and before whose eyes the younger men had to show their quality, and exhaust their stamina.

But even the legion had its weakness like all things human. It had only the mobility of very heavily armed foot soldiers; it was rigid, not flexible; it was organized mainly for action straight to the front; the cavalry that protected its flanks was heavy and cumbersome; it was strong for shock action, but was woefully weak in missile-throwing power. These things Hannibal fathomed, and decided to hinge action upon them in his means and his operations. He recruited the best of slingers from the Balearic Islands—a man can throw harder and further with a sling than he can with the arm unassisted, however brawny the arm. He formed his famous Numidian cavalry, the lightest of the light, the most mobile of the mobile. For a saddle there was a piece of leopard skin; bridle there was none. The well-trained horse needed only the pressure of the rider's legs and a slap on the neck for guidance. Mobility in the highest degree was the essence of this cavalry. His heavy foot troops were organized on the basis of the Roman legion; nothing better could be devised. Hannibal was too sensible a person not to borrow the best, even if he had to borrow it from the enemy.

History tells the tale. The wonderful Roman legion was cut to shreds mainly by flanking action; more than that, it was utterly destroyed on the battlefield; and Cannae to this day is a better symbol of utter defeat than is Waterloo. It is the symbol of annihilation. By the aid of his mobility and foraging power, which he owed to his cavalry, Hannibal maintained his army in Italy, practically out of communication with his home country for fifteen years. At last he had to leave the shores of Italy because of a cry for help from Carthage. His army had to step into the narrow confines of the galleys. Those cavalymen slew their horses on the beaches, and without them Hannibal started overseas for Zama to witness the triumph of Scipio Africanus.

The introduction of fire-arms was a condition that might be supposed to cause a great change in the value of cavalry. Yet after Frederick the Great had greatly increased the rapidity of fire, we see Seidlitz,

* From "The Military Engineer," March-April, 1932.

his cavalry leader, contributing to the decisiveness of his victories. The reputation of the Prussian cavalry lasted till Napoleon's time. Before Jena, Napoleon's chief anxiety about the approaching contest with Prussia was the efficiency of the Prussian cavalry. He knew the value of mobility, and feared to be overmatched in that quality. The Prussian cavalry may have been superior, but the Prussians lacked the leadership of Frederick. The finest tools are not effective in the hands of unskilled workmen.

Napoleon's use of cavalry made historic the names of Murat, Kellermann, Montbrun, and others. Without its aid, the name of Marengo probably would carry a different significance now, and the names of Austerlitz and Friedland would not be known outside of the narrow confines of their communities. In many of our galleries of today, the picture of the Scotch Greys at Waterloo is the best reminder of the force that completed the wreck of the hopes of the Little Corporal. It is likely also that the Prussian cavalry again came to the memory of the men that considered them before Jena when the wreckage of Waterloo began to drift past, and to that war-experienced man, there came the thought of the inevitable pursuit by the cavalry directed by that old dragoon, Blücher.

But the use of cavalry in the open fields of old Europe did not produce, through all of the fighting there, the modern arm of cavalry. That was done in America. In the days of the pioneers, practically every man was a horseman because there were very few roads suitable for wheeled traffic. In war, the pioneer was opposed by the most nimble footman that ever trod the path of war, the most mobile of all. The American Indian of the country east of the Mississippi was a skirmisher, a bush fighter, unexcelled. The white man on foot was no match for him outside of the stockade. Witness the Braddock affair before the Revolution, the St. Clair affair after the Revolution, and many another fight when even the best of the pioneers ran into the enveloping ambush of the Red man.

It is surprising that there was no greater use of cavalry during the Revolution by the Americans. Perhaps the idea of European use of the arm was in the minds of American generals, and common sense could see that it would not be effective. Perhaps they were without any necessity of recourse to horsemen; so superior were they to the immobile British, that the use of more mobility seemed unnecessary. One British soldier in the South taught them a trick or two; this was Tarleton. By swift movements he effected more than one surprise. He certainly impressed one timid soul, Thomas Jefferson, at the time far from war's alarms as Governor of Virginia,—with his celerity of movement. There are certain marks shown on the hall floor of Monticello said to be the shoe marks of Tarleton's horsemen close in pursuit of the fleeing Thomas. In the South, near the end of the war, came a little but decisive victory of American horsemen. At King's Mountain there came a swiftly moving body of

American horsemen that surrounded and destroyed a considerable detachment of British, and the memory of that feat has long survived.

After the Revolution, Anthony Wayne defeated the Indians of the Lake Region at the Battle of Fallen Timbers. With his force, operating on its flank and threatening the flank and rear of the Indians, was a body of Kentucky horsemen. This mounted force certainly had a decided influence on the Indians even if it did no great destruction. The Indian knew enough to be quite sensitive of any threat that might get to his line of retreat.

In Tennessee, during pioneer days, John Sevier used mounted men almost exclusively in teaching the Cherokees how to behave themselves. Sevier was well acquainted with what was done at King's Mountain. He was educated there.

The most successful action against any of the eastern Indians occurred during Andrew Jackson's campaign against the Creeks in Alabama, in 1814. With a mixed force of infantry and cavalry, Jackson almost annihilated the warriors of the Creek Nation. He never encountered them in the field without inflicting on them the most destructive losses. Jackson was naturally one of the most gifted fighting men that ever lived in America. He appears to have been the only one who could meet and annihilate a force of Indians on the battlefield. He had a genius for war. His mounted men were commanded by John Coffee, who is worthy of long memory in the annals of America's fighting men.

During the Creek War, one of Jackson's enemies at home, where he had several, approached the Governor of the State of Tennessee, with the object of reflecting as much as was possible on the absent Jackson, and said: "Governor Blount, why does General Jackson kill so many of these poor Indians?" The Governor's reply was worthy of his name and was: "Because he knows how." There have been not many who have known how, not many who have known the value of a highly mobile force which could be launched with the attack, and in the culmination of the affair be in position to effect complete envelopment of a wily foe who was being held by the grapple in front. The whole combination has to be as it were "on time," neither too soon nor too late with any part of it. Jackson could do this with a foe as elusive as the Indians, and as a result he killed many of them on or close to the field of battle. Such action terminates a war quickly.

Jackson acted strictly in this manner with the British troops when they landed below New Orleans in the latter part of the year 1814. He gave them the surprise of their lives shortly after they had landed on the twenty-third of December. Doubly astounding was the fact that the attack was delivered at night. The British experience theretofore had been that the Americans would not attack at all—simply await attack in some chosen position. Some of those British troops had been educated by their experience at Bladensburg at the time that they so easily came on into the capital and burned the pub-

lie buildings at Washington. The very man who commanded the British advance guard at Bladensburg commanded the advance below New Orleans, and he had the same troops. Jackson's attack that night was with his infantry straight to the front and his mounted men from a position well to the flank which they had gained mounted, and from which they moved dismounted in a direction to take the enemy well in flank and rear. A complete envelopment it was, effected by the mobility of mounted men. Had not the British troops been of the staunchest class of regulars, the Campaign of New Orleans would have ended then and there without the necessity of shooting them into submission before the works on the eighth of January, 1815. At the start of this attack, John Coffee made an address to his troops after the custom of the Romans in the days of the legion. Classical it was not, but well adapted to the men who heard it. The troops had dismounted and assembled forward, probably in preparation to deploy on the line of departure. Coffee then spoke in effect—"You fellows have always said that you could fight. Now we will see." That was all.

American cavalry reached a high state of development during the Civil War. A full year elapsed from the beginning before the armies appeared able to do really effective fighting. The cavalry appears to have set the model for the future; only a few little trimmings to increase its fire power seem to be necessary. By study of the Civil War, and by their experience during the Boer War, the British seem to have reached somewhat the same conclusion. Its correctness was demonstrated in the early days in the World War in France and again in Palestine.

Since some of the criticisms that have been aired as to cavalry have been based on the experience of the Civil War, let us look at the record with more particularity than in other cases.

The cavalry of the Confederacy is usually accepted as superior during the first three years of the war. I see but one reason for this. General Robert E. Lee was a cavalryman in the United States Army before the war, and he had very much to say about the organization and the training of the Confederate troops in Virginia. Later he had all to say about how they were to be used. In the west, Albert Sidney Johnston was in command of the Confederate troops in the beginning. He was a cavalryman before the war, the colonel of the regiment in which Lee was lieutenant colonel. There was no reason why the Federal cavalry should not have been fully equal to that of the Confederates in the beginning, equal in quality and vastly superior in numbers and equipment—no reason except neglect. Its value had to be taught to those in authority by bitter experience. Grant had some of this experience at Holly Springs. He may also have figured out in his quiet way the real cause of the surprise inflicted on him and his lieutenant, Sherman at Shiloh, particularly on Sherman. As to the use of cavalry, Sherman seemed blind at Shiloh, and continued blind through-

out the entire war. Grant and Sherman were severely criticized for the surprise that they suffered at Shiloh. Some critics claim that they should have intrenched their camp. This is nonsense. There should have been with them a strong aggressive force of cavalry, and it should have swarmed around Corinth, the place of concentration of the Confederate Army, with the avidity of bees around blossoms in spring time. Surprise would then have been impossible. Trenches do not prevent surprise.

There is evidence that Grant appreciated the cavalry situation in the Federal Army before the time that he became the commander of the Federal Armies. One of his first acts was to select a commander for the cavalry of the Army of the Potomac. It was the bold, dashing soldier that Grant saw go over the crest at Missionary Ridge and pierce the Confederate center there after Sherman had failed to make headway in the chosen place for success on the Confederate right flank. When Sherman had failed to cripple seriously the Confederate Army in his campaign from Chattanooga to Atlanta, Grant saw the reason in Sherman's lack of efficient cavalry. He did the best that he could in sending Sherman one of the best cavalymen of the Federal Army. James H. Wilson, and told the former what he had done for him. Sherman chose Kilpatrick to accompany him on the famous march to the sea, and sent Wilson, up the line to report to Thomas. That was very wise action on Sherman's part for Thomas had the enemy to fight. Sherman's march was a foraging and devastation expedition. Kilpatrick did encounter Wheeler's Confederate cavalry one day, and ran back to get an infantry division to help him out.

In the first battle of the war, Bull Run, the Federal Army was defeated. After the battle, Stonewall Jackson said that if he had a body of fresh troops he could go and take Washington. If he had had a strong and aggressive force of good cavalry, he might easily have done much better than capturing the city of Washington. He might have destroyed the Federal Army close to the battlefield. Then he could have taken Washington and any other place that he desired.

A good part of a year passed after Bull Run before there was anything of importance done in Virginia in the way of fighting. Then McClellan took his new army down on the Peninsula. The Confederates had done much to improve theirs. Stuart had built up the cavalry of the Army of Northern Virginia. Finally, the two armies were in contact close to Richmond. Robert E. Lee had been placed in command of the Confederates. Stonewall Jackson's corps was brought across from the Shenandoah Valley to the main Confederate force for the offensive about to begin. About this time Stuart made his famous ride around the Federal Army. It made quite a noise in the country. Riding around accomplished nothing of itself, but one result from it was of vital importance. Lee learned accurately the situation of the Federal Army, particularly the location of its right flank north of the Chicka-

hominy. Without this definite information Lee could not have planned the operation that resulted in McClellan's defeat and withdrawal to the banks of the James River. The riding all around was not at all necessary for the purpose. The right flank and rear were the vital things to locate, to keep under continuous observation for location and attitude, and finally for the purpose of guiding Jackson's approach accurately and without loss of time to its proper objective. The duty could not have been wholly fulfilled. Jackson for the first and only time in his career appeared to be at a loss, was slow, and did not get home with the blow that he was expected to deliver. It may be that the glamour of that ride around influenced Stuart much more than it should have done. Stuart should have been of inestimable value to Jackson in his movement on the Federal right flank on the Chickahominy if he had been in the right place at the right time. Jackson's own cavalry leader, Ashby, had been killed in action over in the Valley some time before. Maybe, and very probably, that is the reason for Jackson's slowness. No one moves sensibly at high speed in the dark.

Another chance came soon. McClellan's star had set. His great idea had failed. Faith in him at Washington had vanished. Pope with another army was moving from the North down toward the Rapidan. It was a pity that his approach to Richmond was halted so soon. Jackson was sent up to check him, and did so. Lee with the remainder of the Confederate Army followed Jackson as soon as McClellan was seen to be preparing to leave. Stuart was very active on the Rapidan in determining for Lee the situation and attitude of Pope's army. Then and not until then could the plan for the operations that led to the Second Battle of Bull Run be formed. This plan called for Jackson to place his corps in the rear of Pope's army, and for Stuart to screen the movement. Longstreet's corps was to engage the attention of the Federal commander until the movement was well developed, and then rapidly follow Jackson. This sort of thing could not have been done without the aid of superior cavalry, properly used. It was a daring thing at best. Jackson, after gaining the precarious position to which he had been directed, required absolutely superior information facilities in order to act with safety. Stuart's cavalry afforded that information. Jackson's appreciation of what was required of him and his execution of the task assigned was one of the finest pieces of work done during the entire war. He knew that he must bring Pope to battle—but not too soon. Pope was not to be allowed to get too close to Alexandria, the place where McClellan's troops had to come in order to join him. Jackson first occupied Centerville for the purpose of intercepting him, but as soon as it became evident that Pope was seeking battle himself, Jackson drew in his troops to the position near Groveton closer to the point where Longstreet had to come in through Thoroughfare Gap. All of this maneuver depended on the information gained by the mobile troops at the service of the Confederate general, or the results were simply a

matter of sheer luck, which, considering Jackson's general, almost continuous, success, is not probable.

The junction of the Confederate troops on the battlefield, and in a most favorable position for successful action, won the battle of Second Bull Run, but with no decisive results. The lack of force, especially highly mobile force, permitted the Federal Army to get away to the shelter of the fortifications of the city of Washington. A move was made to prevent this escape and in the right direction, that is via the Little River turnpike, but it was not fast enough, nor in sufficient force. There was not too much cavalry with the Confederate Army, but too little for really decisive victory.

The Antietam campaign followed Second Bull Run. Harpers Ferry with twelve thousand Federal troops was captured by the Confederates. Only the Federal cavalry there got away. McClellan, called back to the command of the Federal Army, had a piece of good fortune that took the place of an efficient cavalry force momentarily. He found in an abandoned Confederate camp Lee's order that gave the distribution and movements of the Confederate Army. He had a great opportunity that was not earned. It was a fleeting opportunity, however. If Lee went into Maryland for the purpose of finding opportunity favorable for battle, he did not find it. He himself was taken at a disadvantage, his back to the Potomac, and his army scattered.

Possibly the Confederate Army might have been destroyed at Antietam if McClellan had been in possession of a superior body of cavalry. It was possible to have prevented the concentration of the Confederates before they were attacked. Jackson barely arrived on the field in time to take proper position. Stuart's cavalry had to be used to prolong the Confederate left flank towards the Potomac. It was useful for that purpose. A part of the Confederate Army came on the field just in the nick of time to break up the attack on the southern flank of the defenders that promised to be decisive. Its arrival might have been delayed far from the field by the use of a strong force of cavalry. However, there was one feature of that Confederate Army that saved it and made its destruction a very difficult matter in any situation whatsoever, made it very durable, made up for many disadvantages, and was always present with it to the very last gasp. That was its indomitable fighting spirit. It stood firm, it was not afraid of fire, or death; it was always dangerous, and finally those who fought against it found out that nothing but downright fighting could accomplish its downfall, and that that fighting must be well directed.

Fredericksburg gave but slight opportunity for the use of cavalry, yet the cavalry on the Confederate side performed its service in assuring General Lee that the strange thing was about to happen, and that all that was necessary for him to do was to remain in his advantageous position and repulse the ill-advised attack that was about to be made. There was shown on the field the spirit of a cavalryman by a young officer of Stuart's horse artillery. He placed his guns under the

overwhelming fire of opposing artillery, did good execution, and by movement saved his own guns from destruction. A few years ago, an old Confederate soldier stood on the gentle rise of ground near where the Telegraph Road crosses the railroad, Hamilton's Crossing, and looked out over the field where Pelham's guns fired on the left flank of the Federal infantry. That old soldier was there with Pelham, when those guns delivered salvos, moved rapidly into new position, and fired again, always firing, always shifting, always opposed with vastly heavier metal. Someone asked, "What manner of man was this young fellow, Pelham?" The old man said: "In ordinary times he was quiet, always modest, but he could see where his guns could do the most execution, and, no matter what the danger, he always placed them there." If any one is interested in where a gallant cavalryman died, he will find on the road north of Culpepper, Virginia, near Brandy Station, a marker on the road side, in the open. There Pelham fought his guns where they could do their best work for those whom he supported, and there passed away one of those whose spirit made the Confederate cavalry superior.

Following Fredericksburg there came Chancellorsville, named for a lonesome crossroads in the wilderness, not for a town as might be supposed from the name. There was wonderful cavalry service thereabouts. The Federal Army had received a new commander, supposedly one of much daring and with a lust for fighting. This lust was satisfied quickly. He was a little complicated in his plans. Starting from the old Fredericksburg rendezvous across the river from the little old town, he moved his great army up the Rappahannock for the fords. Very reasonable and to be expected was that action after the Fredericksburg battle some months previously. For purposes of deception, probably, he had rather a heavy detachment of his army to cross at Fredericksburg as had been done before. That detachment was likely to be wasted if it was not able to hold the main force of the Confederates in place. His cavalry was sent off on a detached mission of no use unless the Confederate commander was deceived thereby. It could not pay for itself if acting altogether alone. It was not put out to delay the approach of large reinforcements to his opponent, but just to raid communications. Raiding communications never produces anything decisive. They must be held if that sort of action is to be of any great benefit to the main operations. Cavalry can delay, but it can not hold. Lee's cavalry was well up the Rappahannock and well able to inform him of any movement that way. With no opposition it could inform him of exactly the character of any movement. It could say: "The bulk of the Federal Army is moving up the Rappahannock." Then Lee could say: "Everything else is just a demonstration, and may be treated as such. Leave only a small force here to cripple the movement across here, and delay its progress in any direction whatsoever, but especially toward the place where I am seeking the decision, up around Chancellorsville." The bulk of the force crossing at Fredericksburg will be

wasted, because a very much smaller force will keep it out of the main fight which will settle all things for the time being. The Federal Cavalry gone off on a raid,—what will be done about that? Well, the further it gets away from here, the less it will be able to do to influence the decision, so let it go far away—the further the better. Send a much smaller force against it to insure that it does not come back to bother us till the main affair is over. All this is the prelude to the wonderful success of the Confederate Army around the Cross-roads at Chancellorsville. Lack of Federal cavalry in the right place; plenty of Confederate cavalry in the right place and knowing how to act.

Fitzhugh Lee's cavalry hung off the flank of the "Finest Army on the Planet." It was able to say at all times where it was and what it was doing, also what it looked as if it was going to do. For Fitz Lee to see was for Lee to know, and to decide what to do. As soon as the armies had settled into fighting pose, Lee decided what to do. He had the evidence upon which to act with certainty, and in Fitz Lee the means of keeping the evidence up to date. Jackson is sent for at nightfall and told to move his entire corps through the woods to the left and attack the Federal right while the remainder of the troops attacked in front. Fitz Lee would screen the move. The screening was not the least important of all the things that had to be done.

Jackson started at or before dawn, very early, you see. He had quite a good day's march before him and his twenty-five thousand good fighting men. Just to imagine the suspense and the anxiety of Jackson's mind under the weight of the responsibility that rested upon him all that long May day is enough to unnerve the ordinary man. But stop to think. Jackson knew that Fitz Lee was out there in contact, and would tell him in plenty of time of any threatening change that was taking place in the state of affairs, so that those good fighting men could be placed in a posture where they could take care of themselves. There was really no fear in Jackson's mind except the fear that he might not get to the place where he was going while such very favorable conditions existed. But that was God's business and not Jackson's. All that he had to do was to keep on going, not to stop for any minor consideration. He seems to have had a large measure of faith in God. At last and before dark he arrived at the place from which he was to launch his attack. Fitz Lee met him and guided him to a hill from which he could see for himself. The troops came up at the slow pace of infantry and formed for attack. The attack was launched; Stonewall Jackson's last great maneuver was made; but how many are there who know what the conditions were that led to its inception, and the guarding of it that made its execution possible? No great movement of troops can be made unless the security of that movement is provided for; and certain it is that no troops could have provided security but cavalry.

After Chancellorsville came Gettysburg. Of all the after-the-war controversy about that famous campaign,

that concerned with the action of the Confederate cavalry seems to be the best known. The defeat of the Confederate Army has been attributed to the absence of the cavalry under Stuart during the advance into Pennsylvania. No doubt Lee in going into Pennsylvania hoped to meet the Federal Army under advantageous conditions for battle. He had in the past enjoyed a superiority in mobility and in mobile troops, and it must have been on this score that he based his hopes for securing favorable conditions; this and the prospect that in the enemy's country they would be more certainly drawn into battle. He was strategist enough to know that nothing could be accomplished without battle or the serious offer of battle. Lee was making on a grander scale the same sort of a move that he made to Second Bull Run, and had attempted unsuccessfully at the time of Antietam.

At the start, Stuart was somewhat to the rear, and so was Longstreet. Jackson, the head of the success at Bull Run and at Chancellorsville, was gone the way of most daring soldiers. Stuart received certain orders from Lee that many have criticised as being too general. They were too general this time as the sequel shows. Viewed before the event they were all right—just such orders as an intelligent and loyal subordinate should have received. Stuart proceeded in such a manner that he left the bulk of the Federal Army between himself and his chief. Instead of being the screen that produced darkness for the enemy and light for his own commander, he was entirely out of the scene till the battle was on. All this seems to have come about from the choice by Stuart of the place where he crossed the Potomac—well down on the stream toward Washington. The motive for this action is not known to the casual investigator, and has not been brought out by any one with authoritativeness. There is surmise on the subject, and only that.

Stuart certainly made one mistake before he started and that was to confer with Longstreet about the orders that he had received from Lee. Lee was well forward and not so easy to consult. In that event there should have been no consultation at all as to the orders, assuming that Lee himself was not accessible. Longstreet thought well of his own ideas of strategy, as evidenced by his writings after the war. No doubt all of the Confederate generals had noted Jackson's wonderful campaign in the Shenandoah, and had sensed from it the fear that the Federal authorities at Washington had as to the safety of the capital city. It was not in the same state of defense in 1863 that it was more than a year before, but still it was a sensitive spot. A heavy force of hostile troops moving quite close to the city might have some very decided effect on the movement of the Federal Army, and be productive of considerable confusion and hesitancy in its action. Maybe Stuart and Longstreet had some ideas of that kind in mind. If so, they were radical ideas and should not have been entertained for a moment. Maybe there was some idea of wreaking havoc on the supply arrangements of the Federal Army. Not much in that line can be gained from a force that can not hold

on for awhile to a choking grip. A small cavalry force can not hold on long enough to be effective in choking communications. Stuart and Longstreet were too well instructed to make any such mistake. If Stuart did not know of the general location of the Federal Army at all times, he was out of position at the outset of things. That may not have been his fault. His position away to the south after the head of the Confederate Army was well on its way was not advantageous for the action expected of him. He had little room between where the Federal Army actually was and the mountains east of the Cumberland Valley; his situation was not an easy one, however viewed. He should have seen his general in this dilemma if such were possible at all.

All know that General Lee lost the Battle of Gettysburg. He was drawn into it in ignorance of the dispositions of the enemy when he was out looking for the most favorable conditions of battle that could be possibly obtained. The cavalry force that had played an indispensable preliminary part in all of his previous successes was wanting. The strange part of the whole affair is that the conditions as to the handling of cavalry in the Chancellorsville campaign were exactly reversed in the two armies. It would seem that bitter experience gave a lesson, success dug a pitfall. Gettysburg is a poor example to quote by those who wish to minimize the value of cavalry in war. Lee lost. His cavalry was mishandled. Meade won. His cavalry was well handled, apparently for the first time. Well handled it was in the preliminary stages at any rate. The withdrawal of Buford from the left flank of the Federal Army was indeed a serious mistake, and opened the way for the near surprise by Longstreet on the Second of July, when Sickles' corps was all but destroyed, and the Round Tops almost lost.

In Virginia in 1864 a change came about. Grant appeared on the scene. He put Sheridan in command of the cavalry of the Army of the Potomac, though Meade was left in command of the army. Much more energy was injected into the cavalry command, much more boldness. It prospered, and the army as a whole prospered. Desperate fighting was forced upon that staunch Army of Northern Virginia. It met the blows as does true steel. It was finally out-manuevered to the south of the James. Stuart was killed in battle. The Confederates tried again the old war path down the Shenandoah. Sheridan, wielding a powerful cavalry force, practically destroyed the Confederate Army sent to operate on Stonewall Jackson's battleground. Finally, when Lee had to give up his position behind the lines of Petersburg and march west toward the mountains, the pursuit was too rapid for even the fast marching Army of Northern Virginia. The Federal cavalry outstripped it and cut its line of retreat. The infantry came up with rapidity, and one of the most sturdy bodies of soldiers ever known gave up its arms in the open field. With its destruction, the war was over.

In Georgia, there was a convincing example of lack of results in a decisive way due to the lack of a strong

and efficient force of cavalry. Sherman made his campaign from Chattanooga to Atlanta without bringing the opposing forces to a decisive action. He captured Atlanta, but the armed force of the enemy marched away. All through the campaign there appears to have been a succession of frontal engagements and slow moving flanking actions. The Confederate Army would hang on to its positions till the moment that the flanking action became threatening and then would let go and get safely back to another favorable position for battle. The same procedure was repeated over and over again without any decisive results. It does appear that the Confederates would offer battle until a certain point and then refuse it. The Federals would refuse battle and begin to conduct a wide flanking movement that would cause the Confederates to draw back when they were placed at a disadvantage. When neither side would come seriously to grips, there was no chance for a decision in the field. As the Federal Army approached Atlanta and there was a change in Confederate commanders, the Confederates attacked. They were simply repulsed, nothing more. The whole campaign gives the impression that neither side had the stomach for fighting that was so strongly evidenced in Virginia throughout the war, and which brought the war to an end. The Confederates in the Atlanta campaign surely would have been brought to battle by an energetic commander who had the means to move rapidly, and the means and the skill to conceal his enveloping arrangements till it was too late to avoid them. Sherman lacked one element necessary for the purpose—a fine body of cavalry ably commanded. As it was, he had an inferior cavalry that could not trust itself alone in the presence of the Confederate cavalry. His every decisive move was detected in its incipency, and the blow fell in the air, resulting in nothing much more serious to the enemy than a loss of ground. When the enemy did come out and attack, there was nothing more serious in return than defensive meeting of that attack. There was a waltz around Atlanta. The Confederates saw it in time, through the eyes of superior cavalry, to get out of the place. The place was captured and its capture did one very great thing. It made the country at large think that a great victory had been won. The press of the country made a great fuss over it, and the effect was so great as to elect Lincoln, when without the event to talk about, he might not have been elected. It had very great political effect if not military significance. Grant's dislodgment of Lee from Petersburg did not terminate that way. He pursued Lee's army with great vigor and destroyed it utterly, so putting an absolute end to the Civil War. It was done by maneuver, and the maneuver had as a basis a highly energetic, well-handled, mobile force.

There can be no doubt of the tendency of failure to bring the enemy to battle in a case such as General Sherman encountered in the Georgia operations. Destruction of property and the imposition of hardships on the civil population seems to be the next step. It is an undesirable thing at best. Had it been possible to have utterly defeated Johnson's army at Kenesaw

Mountain, there would probably have not been the destruction of property in Atlanta, the deportation of the civil population from their homes, and the further destruction of property across the state of Georgia and beyond.

The Confederate Army moved north from Atlanta. Both Grant and Thomas thought at first that Sherman should have followed it, and the former suggested that action as the proper one to take. Sherman objected and stated that the whole effect of his campaign would be spoiled if he did so. He was right, but somebody had to do some fighting. Tennessee, won by the hardest of fighting and by some of Grant's own successes, beginning with Donelson, could not be abandoned to the Confederates. Thomas was the one to whom the task was assigned. This man had proved himself to be one of the sturdiest soldiers in the Federal Army. While Sherman marched to the sea, Thomas was to overcome the principal Confederate Army in the theatre between the Appalachians and the Mississippi.

General James H. Wilson had been sent to Sherman by Grant for the purpose of organizing the cavalry of Sherman's army. He was turned over to Thomas and did a capital job. Wilson's cavalry did much to aid Schofield's corps on its retreat to join Thomas at Nashville. At the battle of Nashville, Wilson's cavalry corps inaugurated the battle by the envelopment of the left flank of the Confederate Army, seized one of the avenues of retreat, and made a relentless pursuit of the fragments of the defeated force. Hood's army was practically destroyed by Thomas, who was most efficiently aided by the cavalry so ably formed and led by Wilson.

Following the destruction of Hood's army at Nashville and on its retreat from there, Wilson still further perfected his cavalry corps and penetrated into Alabama to Selma. There he defeated severely the redoubtable Forrest, of whose activities Sherman had made many complaints but had done very little to quell.

Wilson's cavalry terminated its activities of the war by the capture of Jefferson Davis, the fleeing President of the Confederate States.

There seems to be little doubt that the American experience with the cavalry arm has demonstrated its worth beyond question in the past. If it be regarded as useless in the future, the experience of the past must give way to speculation entirely.

For speculative purposes, there is resort to the introduction of the motor vehicle and the airplane. It may be well to discuss their uses in war.

We have had abundance of experience with the transportation of troops by rail. Our Civil War gave the first extensive experience of this kind to the world. Railways can transport large bodies of troops and supplies over long distances with great speed. They are the means of land transportation best adapted to the purpose. But the railway is a delicate piece of mechanism. It can not operate in a country that is not securely in our possession for the transport of our troops. Troops are quite helpless in the cars, and a single hostile squad can interrupt the line.

Motor transport of troops under modern conditions of roads is very effective, as was amply demonstrated in France during the late war. But like the railroads, the motor roads must be entirely within our security to be reliable. The question of security is very much the same as it ever was in the past; troops have to be on the ground, and they will have to stay on the ground to fight. Once there, no hostile troops can come on busses or on trains.

Armored cars and tanks can expect to go nowhere alone. One light gun on the ground should be worth several in a tank or armored car.

Now as to the airplane—it must be reckoned with in the future. Those who are not provided with it or are not properly provided with it will surely suffer in the next war. With both sides well provided, there will be a kind of offset in air operations. The superior ground forces will win in that case, and the most valuable use of the airplane will be observation for the ground forces. Air operations directed at ground forces will certainly delay and harass them, but will not stop them or defeat them. Attack of ground objectives is decisive when directed from the ground; attack on air objectives is best directed from the air.

Airplane observation is invaluable, but is it able to replace the operations of cavalry? The answer is apparently, no. The airplane should greatly facilitate and make more thorough the operations of cavalry. From the air, anything that can be seen can be reported. That which can not be seen can not be discovered or reported. No resistance on the ground can be felt out from the air. It can be felt out by the cavalry. In darkness, fog, storm, the airplane can not see, can not guard against surprise.

It can not find what is under cover. These things

being true, the airplane can not fulfill the principal duty of cavalry, and that may be stated to be: to draw on the ground a line on which is found the enemy resistance in such strength that all arms are required to penetrate it; especially must this line be so drawn as to show the location of the flanks of this resistance. This being done, the commander in chief knows where the force that he has at his disposal must be directed; this not being done, he can not know. The cavalry is the best instrument known at present to perform this work.

There is one feature of cavalry that is worthy of note. It is not an arm that lends itself easily to transport overseas. Therefore, if our soil is ever invaded, we should be vastly superior to the invading force in this particular arm. For this reason alone we should foster our mounted forces, maintain to the utmost their spirit, a fine spirit inherited from a past of fine performance, and spare no pains to maintain the supply of available mounts.

There will likely be cavalry, and horse artillery, as long as there are horses for men to ride, and men who are capable of riding them. Also, there will be armored cars or other mobile power-driven fighting machines in great number if the war lasts long enough for us to put them in the field. They will work like cavalry if they can. The job of the cavalry can not be dodged, it will always be there when fighting is to be done. The man on foot is not able to do it, and it remains to be seen if the man in a motor car can do it sufficiently well. We have that question in hand and will rely on the answer of the Cavalry, which is very properly charged with its own problems. It must do its job whether with horses or other more mobile and reliable means.

Will Rogers says:*

Santa Monica, Calif.—Maj. Chamberlin and his troop of crack riders of our Army were just up here at the ranch. They are our representatives in the Olympics. They are at San Diego, working day and night on their horses. He has represented us in previous games, and he says that the horsemanship events are the most popular on the whole program.

You talk about something coming back. Say, the old horse is coming back in a high lope. Thousands of people are riding a horse today that five years ago couldn't sit in a Ford with all doors locked. Polo, racing and horse shows all doing great work to help the farmer and rancher to raise better horses and legalize racing in every State.

Sure, people will bet, but they got to see the horses run, and you certainly can see General Motors and General Electric and General Utility run when you bet on them.

* Washington Evening Star, April 4, 1932

The 30th Infantry in the Hawaiian Maneuvers

By Captain Walter M. Mann, 30th Infantry

FOREWORD

THIS is the story of the practical experiences of the 30th Infantry during its participation in the recent joint Army and Navy Maneuvers in Hawaii.

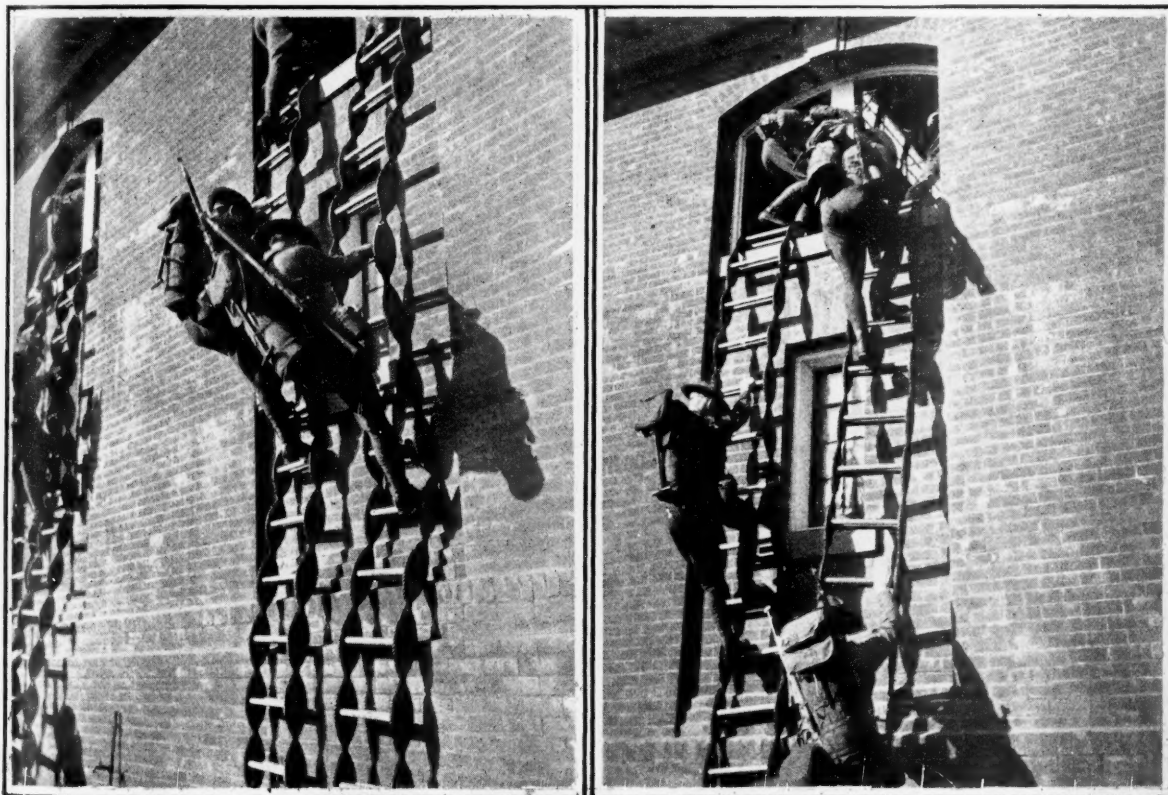
No attempt will be made to discuss strategical or major tactical questions. Such considerations can be more appropriately left to those who, from their seats on Mount Olympus, looked down with a general staffs-eye view on the scene with vision unimpaired by the trivial details as to how Private John B. Doe was to be specially trained, equipped, embarked, administered, debarked, maneuvered and, last but not least, brought safely home again.

The announced purpose of the maneuvers was to test the defenses of Oahu. However, we believe that the brunt of the testing was borne by the expeditionary forces, for upon them fell the necessity of working out the practical details of an overseas movement culminating with a landing on the beaches of a hostile shore.

For the former phase we had recorded precedents; for the latter we found none.

Upon receipt of the directive for participation in the maneuvers, the first logical step was to begin an exhaustive historical research in an effort to find something on record for guidance, and it was surprising—and disconcerting,—how little of actual value could be found in the dusty archives. There were volumes of printed matter on the theoretical phases of overseas expeditions, but no one seemed to have been much concerned about delving into the work-a-day details. Consequently it is felt that the experiences of the 30th Infantry will be of value for reference in future operations of this kind.

Finding the records so barren we had to fall back on those best of teachers, experiment and experience, and develop our own ways and means. It is the purpose of this article to present them in narrative form to those interested, omitting, of course, some details of confidential nature.



30th Infantry Practicing

NARRATIVE

Organizations: The actual army troops taking part in the maneuvers consisted of the 30th Infantry (less one battalion), with Battery "D", 76th Field Artillery attached.

The regiment was organized with a reduced command group, communication platoon, transportation platoon and two battalions. Rifle companies averaged two officers and sixty-three enlisted men in strength, and machine gun companies two and forty-six.

The rolling equipment taken consisted of four two-line team wagons; two four-line team rolling kitchens; eight machine gun carts with trailers and two communications carts. Twenty-six animals were taken.

The strength of the battery was four officers and eighty enlisted men. Its rolling equipment consisted of four guns with limbers, four caissons and four wagons, and it was allotted seventy-five animals.

The total strength of the regiment and battery was thirty officers and six hundred and ten enlisted men.

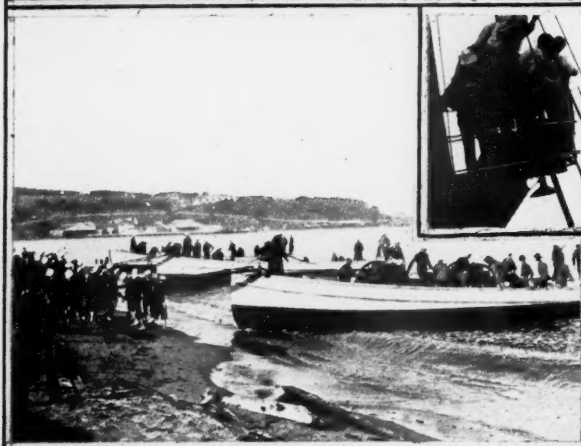
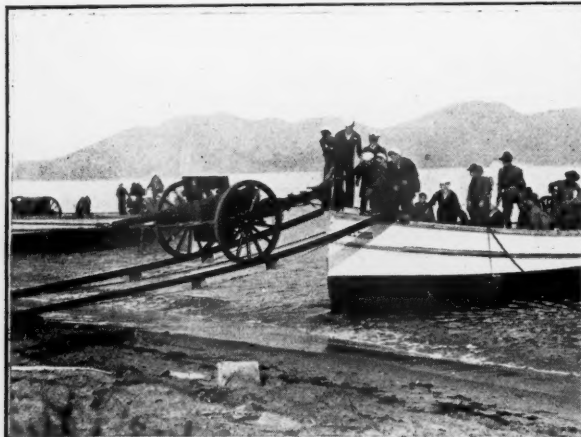
For purposes of record, and possible interest to some readers, the following roster of officers, showing duty assignments, is given:

THIRTIETH INFANTRY

Commanding OfficerColonel C. B. Stone, Jr.
Executive Officer and S-1Captain W. M. Mann
S-2 and S-3Captain P. J. Lloyd
S-4Captain W. V. Rattan
Communications Officer1st Lt. J. W. Newberry
Shore Party CommanderCaptain N. M. Walker

First Battalion

Battalion CommanderLt. Colonel E. E. Lewis
S-1, S-2, S-3 and S-41st Lt. D. P. Frissell
Company A
Company CommanderCaptain M. W. Marsh
Company Officer1st Lt. H. G. Sydenham
Company B
Company CommanderCaptain P. B. Robinson
Company Officer1st Lt. W. E. Smith, Jr.
Company C
Company CommanderCaptain E. J. Curren, Jr.
Company Officer2nd Lt. H. J. Van der Heide
Company D
Company CommanderCaptain C. Collins,
Company Officer2nd Lt. P. J. Black.



Upper left—Unloading Field Guns from Naval Motor Sailers. Upper right—"Look out, Oahu! Here we come." Lower left—Debarcation Practice on the Beach at Presidio. Lower right—Slings an Animal from Transport to Mine Sweeper.

Second Battalion

Battalion CommanderMajor W. J. Morrissey
S-1, S-2, S-3 and S-4Captain A. R. Mackechnie
Company E

Company Commander ..Captain P. B. Waterbury
Company Officer (and in charge of flags representing constructive Divisional Units)
Captain D. P. Yeuell

Company F

Company CommanderCaptain A. W. Penrose
Company Officer . First Lieutenant J. H. Stokes, Jr.

Company G

Company CommanderCaptain H. F. Love
Company Officer ...First Lieutenant E. H. Wilson

Company H

Company CommanderCaptain G. K. Crockett
Company Officer (and Personnel Adjutant)

First Lieutenant J. C. Odell

Battery D, 76th Field Artillery was attached to the 30th Infantry for the maneuvers. The personnel of this battery consisted of four officers, assigned as follows:

Battery CommanderCaptain J. C. Hughes

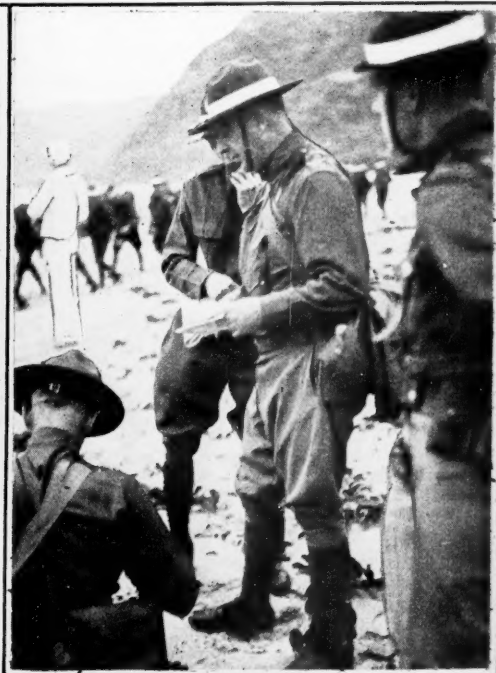
Battery Officers: ..First Lieutenant W. R. Schaefer

Second Lieutenant C. R. McBride

Second Lieutenant C. C. Smith;

and eighty enlisted men.

Training: In addition to the normal training of in-

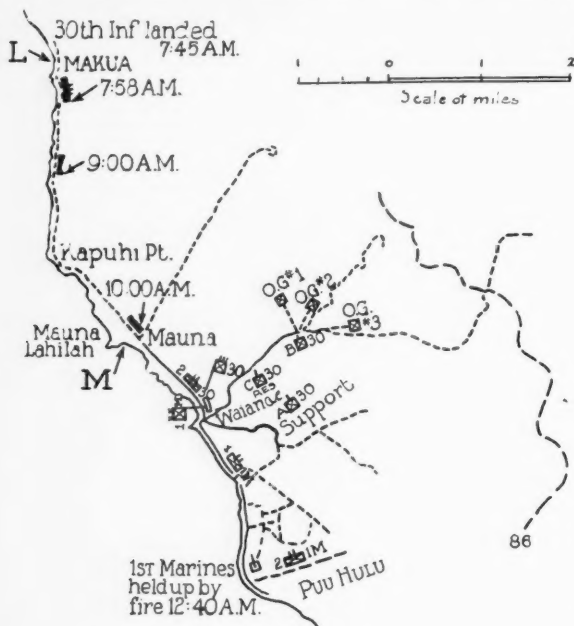


Upper left—The Beach at Makua. Upper right—Col. C. B. Stone, Jr., 30th Inf. at Makua Beach. Lower left—Naval Radio Station at C. P. of 30th Inf., Waianae. Lower right—Regimental Commander and Staff. C. P. at Waianae.

dividuals and units considerable thought and time had to be given to special training for the particular operation in prospect. This training was begun about four months prior to the period of the maneuvers.

As a preliminary step all individuals and animals of doubtful physical endurance were eliminated from the units scheduled to go. The survivors were put through a series of intensive hardening exercises consisting of marches, setting up exercises and rope climbing. This latter exercise was intended to develop muscles that might be needed in clinging to swaying rope ladders dangling over the transports' sides in case feet slipped from ladder rounds or a failure to connect with the launch occurred.

From the beginning the safety factor was always uppermost in the minds of the organization commanders and, in appreciation of the hazards of debarking troops



into small boats in the open sea and landing them through the surf on open beaches, all men were given carefully supervised swimming instruction. At the beginning only sixty per cent of the men were found to be qualified; at the time of embarkation all men of regiment, except nine, could swim at least fifty yards.

The animals were also given swimming exercises. This interesting phase of the training has been covered by another writer in articles previously published.

The debarkation plans called for the troops to go over the sides of the transport into the small boats by means of "Jacob's" (rope) ladders. Accordingly ladders of this type were procured, swung from second story windows and troops required to practice descending until a feeling of confidence in their use was attained.

Working with the navy representatives the following schematic diagram of landing was drawn up which shows in detail the units to be loaded in each small

boat, the order in which they would be loaded, and the schedule of their procedure to the beaches:

BEACH X
SCHEMATIC DIAGRAM OF LANDING

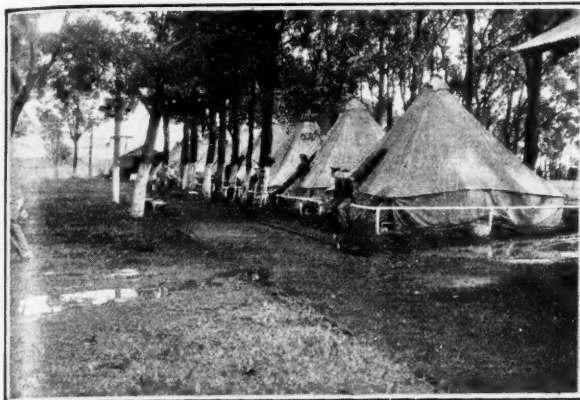
	Beach Sector "A"		Beach Sector "B"	
	B-2	B-1	A-1	A-2
3 minutes or 500 to 600 yards		No. 2 (40') Navy 11 Co. F less one Plat 34 Hq. 2nd Plat 4 3rd Squad 7 Co. H 7 8 boxes 56		No. 1 (40') Navy 11 Co. E less one Plat 31 1st Squad 7 Hq. 1st Plat 4 Co. H 4 8 boxes 56
3 minutes or 500 to 600 yards	No. 4 (40') 2nd Plat 28 Co. F 7 4th Squad 7 Shore party Comdr and 16 men 17 8 boxes 52		No. 3 (40') Asst shore party comdr & 5 men 6 2nd Squad 7 Hq. 2nd Bn 14 2nd plat 28 Co. E 28 8 boxes 55	
3 minutes or 500 to 600 yards	No. 6 (40') 2nd Plat 28 Co. G 7 3rd Squad 7 Hq. 2nd Plat 4 Co. D 4 Navy Comm Group 12 8 boxes 51		No. 5 (40') Hq. Co. H 6 1 off 2 men (Arty) 3 Co. G less one Plat 34 Co. D (1st Sq) 7 Hq. 1st Plat 4 Co. D 4 8 boxes 54	
3 minutes or 500 to 600 yards	No. 8 (50') Co. B 61 4th Squad 7 Co. D 5 Hq. Co. D 7 Regtl Hq. 7 8 boxes 80		No. 7 (50') Co. A 61 2nd Squad 7 Hq. 1st Bn 14 8 boxes 82	
3 minutes or 500 to 600 yards				No. 9 (50') Co. C 61 Regtl Hq. 19 8 boxes 80

The type of boat to be used was the navy motor-sailer, having its own motor. Six of the boats were forty feet long and three fifty feet,—a total of nine required to land the combat personnel of the regiment in one trip to the shore.

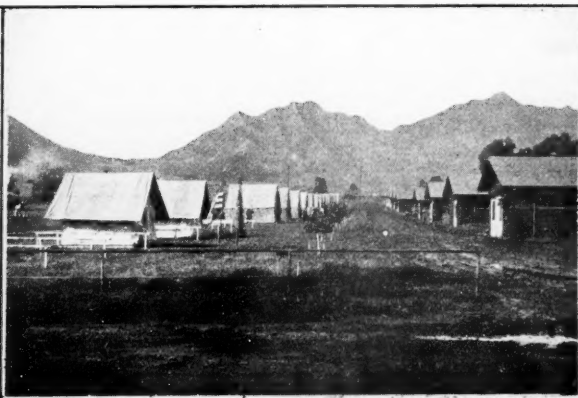
It will be noted that in each boat was a complete combat team of either a platoon or company of riflemen and a machine gun squad. The idea was that when the boat reached the beach its load of troops could hit the sand and immediately take up fire and movement on its own until other units arrived and team work was coordinated by successively arriving intermediate commanders.

Early in the training these boat groups were organized and trained to work together. Diagrams of the boats were taped out on the ground at the foot of the rope ladders referred to above, and troops shown how to dispose themselves and their equipment in the boats.

In the tactical training special emphasis was placed on the establishment of temporary beach heads. For this training the exercises habitually started at the water's edge on the Presidio beaches with units initially disposed in boat groups relatively located on the beach as they were scheduled to land, and from such



Part of 30th Infantry Camp at Schofield Barracks, T. H.



30th Infantry Camp—Kohe Kohe Pass in Background

points the exercise developed to the establishment of the temporary beach head. Riflemen were taught to start moving on the run toward their assigned objectives the moment they hit the sand. Machine gunners were trained to go quickly into firing positions on or near the beaches in support of the advancing infantrymen.

The general scheme was for the leading battalion to quickly clear the beach of hostile troops, push them back and contain them until the rear battalion had landed. The rear battalion then passed through the lines of the former and took up the fight—and so on until resistance was dispersed and the march column could be taken up.

Later we had a short practice with the Navy; a so-called "dry run," which proved literally not so dry. For this practice the troops were taken aboard the army transport "Grant" which was moored at the Fort Mason docks. The navy motor-sailer came alongside and the troops went over the ship's side into the small boats by means of the rope ladders. The launches then put out into the bay and landed on the Presidio beach and the exercises proceeded as outlined above.

This rehearsal was invaluable in bringing out errors and unsatisfactory conditions which might have proven disastrous if not corrected before the landing on Oahu.

It was found that the navy boat crews were too cautious in driving their boats up on the sand;—this left quite a stretch of water, sometimes waist deep, to be negotiated by the troops in reaching the beach line, and everyone got thoroughly soaked. The fallacy of troops jumping out of the boats wearing their packs was also proven. It was found that the weight of the pack overbalanced its wearer and frequently deposited him in a ludicrous and uncomfortable position with the water line up around his neck. In subsequent landings the pack and rifle were carried in the hands and served to pull the jumper forward instead of backward.

The debarking of the troops was simple compared with getting the heavy rolling equipment ashore. For this purpose the navy equipped its fifty-foot motor-sailers with steel channel irons, or "I" beams, whose gauge corresponded to that of our vehicles. The latter were swung off the transport and into the launches by

means of winches. With luck and a reasonable sea their wheels sometimes connected with the track on the boat. Upon beaching the boats an extension to the track was run out over the bow to the sand and the guns, rolling kitchens, wagons, etc., were manhandled to the shore.

The first experiments with this method were not so satisfactory. It was found that when the boat lifted on the surge of the surf the shore ends of the track would dig into the sand and as the boat settled down again pry it back into the water. This difficulty was met by fixing rollers on the shore ends of the tracks which would then roll back and forth with the motion of the boat.

Under the Plan of Landing the navy was responsible for moving the troops and equipment from the ships to the water line on the beach. From the arrival on the sand the responsibility for further movement passed to the army.

To facilitate and coordinate such landings the navy sent ashore in the first boats a group called the "Beach Party" under command of a naval officer. Its function was to meet the boats upon their arrival on the beach and by means of lines passed to the shore pull them further upon the sand, steady them and unload the equipment. In this group was also a signal unit to communicate between shore and ships.

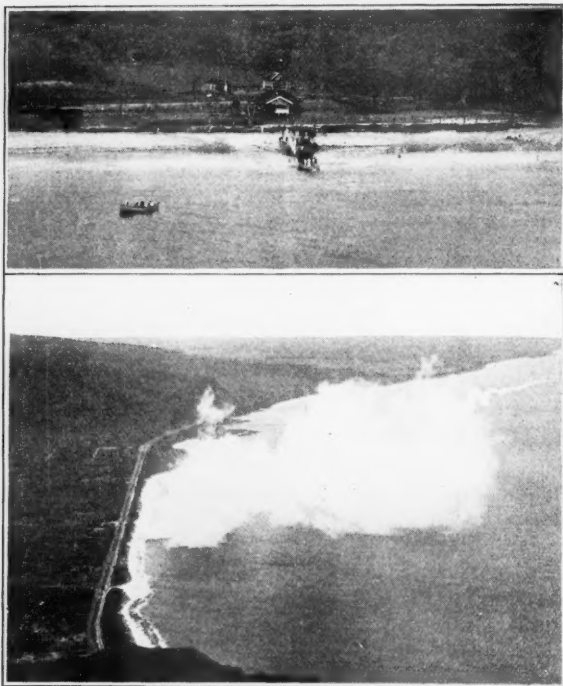
Movement Overseas: Profiting by the disastrous experience of one of our allies in a historic landing on a hostile shore during the World War, the "Unit" loading plan was prescribed for the expedition. This method provides that a complete, self-containing combat team of combined arms with all unit transportation and supplies be loaded on one ship.

The advantage is obvious. It is supposed to ensure that the balanced team can be placed ashore together on the same beach. However, without disparaging this principle, it was found that its advantage was neutralized materially by the comparative time factors involved in landing infantry and artillery. In our experience on Oahu the infantry combat troops had landed and marched seven miles before the first gun was reported in a firing position near the landing beach, and the final objective had been reached be-

fore the battery became mobile. This delay was not the fault of the artillery but was due to the fact that the infantry had priority in debarking, and to the much greater difficulty in getting the animals and heavy equipment ashore. It is possible that better results might have been obtained if the artillery had been on a separate transport and could have begun its debarkation simultaneously with the infantry. Also for sanitary reasons, the advisability of combined loading of troops and animals for voyages of any length in warm weather is questionable.

Our expedition embarked on the USAT "St. Mihiel" and sailed from San Francisco in the late afternoon of January 31, 1932. At noon the next day the transport arrived at the rendezvous of the battle fleet off the southern California coast and thereafter proceeded in convoy. In spite of rough seas, restricted quarters and abnormal living conditions, the men were in fine fettle and eager to play the game according to the rules.

The convoy sailed on a course which took it far to



Above: Thirtieth Infantry Landing at Makua, Oahu.
Below: Smoke Screen Laid By Navy Plane During Landing of Thirtieth Infantry.

the south of the island of Hawaii, the southernmost island of the Hawaiian archipelago and, making a long sweeping curve to the west approached the shores of Oahu from that direction.

Dawn of February eleventh found the transports with their protecting warships off Waimea Bay on the north coast of the island; and considerable excitement stirred up ashore. Search lights blazed out and a hornets' nest of Black bombing planes made spectacular dives at the ships, dropping flares representing bombs; our eight machine guns, mounted on the transports' decks, returned their fire.

When the purpose of the feint had been accomplished and the garrison of Oahu alerted, the ships put out to sea again and spent the day browsing around up north just out of sight of the Island of Kauai. After dark they turned southward, and rounding Kaena Point, made for the west coast of Oahu.

Orientation: Battles may be fought and wars perhaps won without the active presence of generals, but in a maneuver there is always one that is absolutely indispensable. We refer to that old, hardboiled "General Situation," and so:

(In brief) x x x The Blacks had captured Oahu from its defending Blue garrison about three months previously x x x It was reliably reported that with minor changes they were using the old Blue plan of defense. x x x x

The Black strength was x x x thousands and thousands x x x. The strength of the Blue Expeditionary Forces was "constructively" ditto x x x x.

Think of the possibilities for the staffs! None was neglected. Orders were written for the Army, the Corps, the Division, the Brigade; combatical, logistical and annexial; and all nicely mimeographed.

Disregarding, with this brief reference, these thousands of constructive combatants we revert again to the narrative of the actual troops.

With the main strength and major dispositions of the Black forces our regiment was not much concerned, but we were vitally interested in the locations of their centers of resistance, with their supporting artillery, in our immediate front.

As we numbered among us many officers who had served in Hawaii in the past, and some who had in recent years helped revise the Primary Tactical Plan, the locations of these defensive areas were supposed to be fairly well known. However, there was a question about this, for as brought out at the general critique those former members of Oahu's garrison were probably more practically familiar with the road from Schofield Barracks to Honolulu than with the defense plans of the Island. Be that as it may.

The Landing and Operations Ashore: At 3:45 A. M. February 12th, the troops were awakened and messed. Boat groups were assembled, unit equipment placed at the loading points on deck and all stood by waiting for the small boats. The transport cautiously felt her way in toward the shore with all lights out, and at 5:00 A. M. hove to about two and one half miles off Makua Beach, eight miles north of Waianae.

We had arranged two debarking points on the transport. Six of the small boats (forty footers) were to load from the afterwell deck, in numerical order, and three (fifty footers) similarly from the forwardwell deck. Each boat carried a crew of from fifteen to twenty-five sailors and mounted a navy machine gun in the bow for anti-aircraft fire. The first boat was hailed at 5:15 A. M. but proved to be boat Number 6, and it was fifteen minutes later that Number 1 came alongside. The navy furnished the life jackets and they had to be hoisted aboard the transport from the small boats, thereby causing additional delay.

The boat groups filed past the box slings depositing

packs and arms, and while this equipment was being lowered into the launches the men put on life jackets. At the command of the Army Debarkation Officer the troops went over the side by means of two rope ladders at each loading point. The average time for loading a boat with equipment and personnel was about eight minutes. As each boat completed loading it shoved off and moved to a rendezvous point about three hundred yards from the transport. From this point, the boats were started for the beach by the Navy Control Officer in successive waves of two boats each at three minute intervals. The first two boats were scheduled to reach the beach at zero hour (6:30 A. M.).

Sea and weather conditions were ideal; there was very little swell and the sky was slightly overcast. At the start of debarkation the darkness made movement somewhat cautious and slow. The beach selected for the landing was an indentation in the coast line, partially sheltered from the open sea, with a shelving sandy stretch about one-half mile in length, and opening on a little valley of about the same distance in width. This was bordered on all sides, except for a narrow beach road running north and south, by the sheer, unscalable cliffs of the Wainae mountain range.

During the movement of the boats to the shore friendly planes from the warships dropped smoke screens to blind the enemy OP's on the heights. Viewed from the sea the white smoke banks, contrasting with the dark mountain sides, were a sight to be remembered.

Hostile planes were a bit tardy in arriving, and several boat groups were ashore before they swooped down, raining bombs, machine gun bullets and general destruction on the landing Blues. Considering the fact that the AA batteries of the warships were in action against them, and that the machine gunners and riflemen of the landing forces were peppering away at them one could not but be amazed at their daredeviltry in flying so low. They dove again and again to within a few hundred feet of the ships, and these repeated attacks also made one wonder what miraculous system of replenishment of bombs and ammunition they used.

But to continue with the story of the infantry.

Boats were beached. Riflemen and machine gunners went over the bows, slung equipment, clawed their way up the sandy banks looking for trouble,—and were disappointed that none could be found. The landing was unopposed. The only visible evidence of the garrison was a medical officer, who with his family, occupied a lonely beach cottage nearby and who had a ringside seat to see the show.

An umpire coming up during the landing remarked: "Well, you certainly 'G-two-ed' them this time. They were looking for you over on the northeast coast"; and, true to the form of all umpires, assessed a loss against us of seventy-five men from plane fire. Our quick thinking "K.O." immediately allotted this loss to our "constructive" third battalion, and the command was "Forward."

Disregarding the lack of hostile opposition, the leading battalion established the temporary beach head as per schedule. The rear battalion, completing its landing, passed through the beach-head lines, and in se-

curity-march formation moved on Waianae, eight miles away.

Our mission was to capture this west coast metropolis in order to afford the Marines, whom, without malice aforethought, we have so far forgotten to mention, a place to land. The march southward was over an unimproved, stony road, thickly overgrown with algeroba brush.

The Waianae mountain range on the west coast flings itself down toward the sea in a succession of bold headlands. Rounding the nose of each of these ridges we expected trouble, but to our growing surprise none was encountered until our advance guard began passing through the streets of Waianae. Here, the umpires



30th Infantry Going Ashore in Small Boats.

told us, some 155 HE's were falling from a battery firing from the vicinity of Kole Kole Pass about five miles away.

In passing through Waianae our advance guard captured the only Black troops seen during the maneuvers, a platoon of the 35th Infantry which had been pushed out as a sort of a forlorn hope observation group from its main body ten miles away near Nanikuli. Due perhaps to the fact that we were hungry and that it brought to mind a one-time famous New York restaurant, we remember that the platoon leader's name was Lieutenant Delmonico.

At about 11:00 A. M., as the Regimental Commander and the writer, marching a little ahead of the main body, arrived at the Waianae railroad station, there came sounds of boats scraping on the sandy beaches near by, and bursts of strong language.

We knew the marines were landing!

Contact was made with their battalion CP which "constructively" represented their regimental, brigade and division headquarters, and we made the most of our opportunity to report that "The army has landed and has the situation well in hand." With the landing of the marines our first mission was accomplished and it only remained for us to pull back our advance guard and establish a covering force on Mauna Kuwale which commands the approaches from Kole Kole Pass; and to await further orders from the high command.

So much for the activities of the combat units. Now let us go back to our rear echelon left on the transport to put ashore the animals, rolling equipment and supplies—a man-size job, plus.

The animals were sent ashore by three methods. One, by loading them into the fifty-foot motor boats by

means of a "flying" stall, (see previous articles) carrying them fairly close inshore and dumping (or dunking) them into the water for the swim ashore; another, similarly loading them on mine sweepers for a part-way trip to the shore. This method, which if properly handled by requiring the mine sweeper to come as close inshore as the depth of water would admit would have been the most expeditious way in getting the animals ashore, proved unsatisfactory due to the vessel standing entirely too far off shore. A few selected animals were slung overboard direct from the transport and swam all the way to the beach. The rolling equipment was handled as described during the practice runs at the Presidio.

At 2:30 P. M., a message was received from the rear echelon commander to the effect that all animals, rolling equipment and supplies were ashore; this was very gratifying to the front line troops as they hadn't expected hot food or the blankets until next day.

The maneuvers terminated at 4:30 P. M.

The regiment moved by train from Waianae to Schofield Barracks, remaining there under canvas until it reembarked at Honolulu on February 19, 1932. Sailing the next day, it arrived back at its home station on February 26, 1932.

Retrospect

The Regiment feels a justifiable pride in the fact that it moved its personnel of six hundred and forty,

its one hundred and one animals, and its necessary accessories three thousand miles across the sea, landed them on a beach under simulated war conditions, and brought them all home again without a serious casualty or the loss of important piece of equipment. In the process we feel that we have learned many things that will prove of much help in future expeditions of this kind.

In due course of events a considerable portion of the personnel who went with the expedition, particularly the officers, will scatter throughout the service carrying with them the experience and ideas that may be utilized by other organizations in case of need.

In closing, it would be only appropriate to express our appreciation of, and our admiration for, the officers of the navy,—those hard working, capable gentlemen who manipulated the imposing fifty million dollar "battlegions" with such assurance and ease, and who took us across the sea, deposited us upon the appointed beach at the appointed hour, and in the appointed manner.

And the same sentiment goes also for our own army transport personnel, those good old practical buddies who saw us and our "junk" over the side and back again without a single mishap.

All in all it was hard work, fine experience and good fun. We hope to go again some day.



The Job Done. Thirtieth Infantry Returning to its Barracks at the Presidio

The Verdun Forts

By H. A. DeWeerd, Professor of History, Denison University

"Verdun provides the most valuable lesson of the war in the history of permanent fortifications. The army unquestionably won the battle, but concrete and steel contributed its share."

GENERAL NORMAND.

THE heroic resistance of the French Army has rather obscured the part played by the forts in the epic defense of Verdun. Marshal Petain's recent book contains some very interesting information regarding the resistance value of formal fortifications in the day of modern heavy artillery.¹

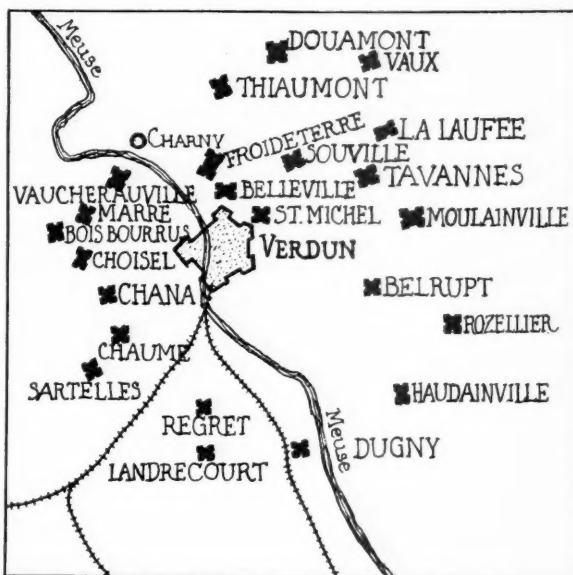
The speed and precision with which the great German siege guns reduced the Belgian fortifications upon the outbreak of war in 1914 came as a distinct surprise to many military leaders. Liège fell after twelve days attack, Namur after six days, while Maubeuge and Antwerp held out for thirteen days. The Russian fortresses fared no better. Kovno surrendered after twelve days, Przemyśl after four days attack. These facts caused military leaders to lose faith in formal fortifications and encouraged them to look upon machine-guns, trenches, barbed wire and infantry as the principal factors in defensive operations.

In drawing these conclusions, the military leaders failed to take into consideration the fact, that in the cases referred to, the forts did not have active liaison with a formidable field army. Neither did they stop to determine whether or not the forts had been designed to resist the weapons brought against them. Liège and Namur were constructed to resist shells up to 21 centimeters, but were forced to surrender when attacked by weapons of much larger caliber. The Russian fortress Novo-Georgievsk, which surrendered in 1915, could have resisted the heaviest of Austro-German weapons.

II

Vauban's old circle of forts around Verdun, had been augmented by a series of modern works dating from 1874. The modern forts include: Belleville, Saint-Michel, Tavannes built from 1874-1880; Douaumont, Vaux, Moulainville, Bois-Burrus, and Souville built from 1880-1897; Thiaumont, La Laufée, Froideterre, Charny, and Vacherauville constructed or improved from 1889-1914. These fortified areas were constructed at the cost of 78,000,000 francs, and represented the best work of French engineering and construction. The walls of the modern works were of concrete eight and a half feet thick, using 850 pounds of cement to the cubic yard. In standard European fortifications the proportion of cement to the cubic yard was 550 pounds, while the walls were from five to six and a half feet thick. The main armament of the modern forts consisted of disappearing guns of 155 caliber mounted in turrets, disappearing guns of 75 caliber mounted in turrets for flanking fire, and machine-gun turrets for twelve guns.

All these careful provisions for the defense of Verdun were pushed aside, when on August 5, 1915, the French High Command issued an order stripping the fortifications. The artillery of the forts was dismantled and dispersed for use in the field, and preparations were made to blow up the forts in case of an enemy attack. The French prepared to defend Verdun, if this became necessary, with infantry and field artillery. They relied on the natural strength of the area and felt that the Germans would not attack where they felt themselves to be so strong. It was with these facts in mind



that General Joffre steadfastly refused to become alarmed over the warnings of an attack on Verdun. As a consequence, no adequate steps were taken to prepare the area for defense. Petain passes over this negligence on the part of General Joffre in dignified silence. When the evidences of a serious attack became overwhelming, the French made frantic efforts to get Verdun ready for defense, but these preparations consisted in laying out tentative lines of trenches.

The unprecedented severity of the German attack, especially of the artillery preparation caused the French to recoil. Looking on Fort Douaumont as a mere shell trap, the French forces withdrew around it, and made it possible for the German infantry to capture the fortress by the simple expedient of walking into it. They found it virtually abandoned; a company of engineers was futilely trying to dismantle some of the remaining artillery. Fort Douaumont was one of the

¹ Marshal Henri Philippe Petain, *Verdun* (Eng. Trans.) Dial Press, N. Y. 1930.

most important works at Verdun; it dominated the ground around it, provided shelter for the German infantry and armoured observation posts for the officers. Once in possession of the enemy, the value of Fort Douaumont became apparent to the French. For in spite of constant shelling by the heaviest French batteries, Douaumont protected the German forces and provided an admirable sally point for attacks. The French army commander on March 12 ordered that the forts should be defended in every case. He wrote:

Our experience in recent warfare has given us an opportunity to realize the resistance-value of the forts. They are indeed better organized than hastily constructed strong points on the field of battle, for their sites and plans have been laid out at leisure, the flanking angles carefully calculated, the shelters deeply dug and re-enforced with concrete. The forts can and should be used in every case in the defense of the various sectors.

The guns will therefore be replaced in the casemates, the turrets repaired, the gun chambers cleared of all explosives that have been carried into them in order to destroy them - - -

Under the existing circumstances it was found to be exceedingly difficult to replace the guns and materials long missing from the fortresses. The German attack afforded no respite, and the French had all they could do to bring men and munitions enough along the "sacred way" to support the defense. But where the guns were replaced, they showed great value in action. Froideterre offers a good example. The Germans attacked this work on June 23, 1916, after an intense bombardment. The upper works of the fort seemed heavily knocked about and on fire; the German infantry prepared to enter, when suddenly a 75 turret, thought to be out of action, opened on them with shrapnel and a machine-gun turret caught them in its zone of fire. Thus confused the Germans were driven back by a counter attack which developed behind the security of the fort. Froideterre was deluged with some thirty to forty thousand shells, some as heavy as 210 caliber, but the concrete shelters were not harmed and the Germans never captured the fort.

The experience of the French at Froideterre was repeated on July 11 when the Germans attacked Fort Souville after a terrific bombardment. Once again the German infantry seemed on the point of entering the fort, when the fort's defenders sallied in a counter attack and drove them back in confusion. The three fortified hill tops, Froideterre, Souville, and La Laufée, although involved in desperate attacks never once fell into the hands of the enemy. After the French were committed to the defense of the forts, the works took on new meaning to the troops who battled savagely in their defense. The gallant defense of Fort Vaux under Major Raynal in which the whole force succumbed, is a good illustration. The forts became symbols to the troops.

In addition to providing sally points and shelters for the troops, the Verdun forts were also of great

value as organizing factors in the defense. Munitions and materiel were stored in their vaults, headquarters for combat groups were formed, telephone and signaling equipment was installed. Petain emphasises the "organization value" of the forts.

III

When analyzed in retrospect, the resistance qualities of the Verdun forts seem a little astonishing. Fort Douaumont for example was struck by 120,000 shells of which 2,000 were of 270 caliber or heavier. (2) But when it was recaptured the tunnels and vaults were found to be undamaged, while one of the 155 caliber turrets although struck twice by shells of 400 caliber "was so little damaged that nothing was needed to put it back into condition except cleaning and greasing." The same turret was later struck while in action by a shell of 280 caliber but was not silenced. Fort Vacherauville was struck by over 8,000 shells, (2) Figures based on French estimates, some as heavy as 420 caliber; Fort Moulainville by more than 8,000 shells of heavy caliber; Froideterre, Souville, and Tavannes, each were struck by at least 30,000 shells, but all the tunnels and shelters remained intact. Gun mountings and turrets showed equal strength. General Deseourtis, Chief Engineer, 11th Army writes:

The war demonstrated that the portions of our forts adapted to active combat—defied the most powerful artillery. Concrete which may have proved unsatisfactory abroad, and which has been too hastily condemned as useless, has given good service in our cases. The Germans tried in vain to blow it to fragments with projectiles whose weight and explosive force was far beyond anything our artillerymen and our engineers could have imagined, but they achieved only the destruction of local and limited areas. The construction of shell-proof chambers was so well conceived, worked out with so much care, and left so much margin for unexpected developments, that as a whole these parts withstood triumphantly the most formidable attacks.

As to the armoured turrets, the heaviest enemy projectiles were unable to destroy any but a small number of machinegun turrets, which made no claim to resist any but light artillery. All our 155 turrets are in good condition, and the only 75 turret which was destroyed fell victim to the explosion of a charge that we ourselves had carried inside.

Marshal Petain believes that if Fort Douaumont had been garrisoned and defended as it should have been, the Germans would never have taken it, and that their advance toward Verdun would have come to an abrupt and early halt. The French paid a very high price for their lack of faith in the Verdun forts, but once aware of their value, they took full advantage of the remaining works. The experience of Verdun makes clear that although a "fortification alone is not enough to check the enemy, it greatly increases the resisting strength of troops who know how to use it."

Ancient Firearms

By Fletcher Pratt

BECAUSE the hand-gun ultimately supplanted the bow and the cannon the catapult, an impression persists that firearms (in the modern sense of a weapon, powerfully affecting the result of battles) were nonexistent before the invention of gunpowder. Nothing could be more incorrect. Ancient and medieval commanders had a wide variety of artillery to choose from, and the ancient infantryman could stop cavalry as roughly as the footman of Napoleon's day and a lot better than the soldier of the days of Marlborough.

Small Arms

Beginning with small arms, four main types deserve notice: sling, javelin, hatchet and bow. Slings need not worry us long. They were always barbarian weapons; threw a stone or bullet little more than 150 yards; could not penetrate even indifferent armor, and had no great accuracy. Slingers needed plenty of room to work in, and could not be assembled in sufficient concentration for combat use. The sling remained merely a fairish weapon for scouts.

The hatchet is equally insignificant. When the barbarian Franks first made their appearance in Europe, a small axe called the *francisca* was their only missile weapon. They were quite adroit at throwing it so that it arrived edge outward, but abandoned it as soon as they got bows in their hands.

The javelin is something else. It was the standard missile weapon of the Roman legion; the Vikings used it constantly in the hardest kind of pitched battles; and Alexander's troops broke down the circling tactics of the desert horse-bowmen with it. A missile capable of meeting such tests deserves respect—but there are difficulties about all these cases.

The trouble is this: The javelin used in modern athletic contests is not radically different from the ancient weapon. Now the world's record for the javelin-throw is only a little above 200 feet. The bow used by the Bactrian horse-archers is also known, and its range is a good 150 yards. Now allowing that Alexander's men had a better balanced javelin and were more skillful in its use, there is still a wide range gap in favor of the Bactrians. The conqueror must have handled his javelin-men with uncanny tactical skill.

The Roman legionary carried five small (*verricula*) and two heavy (*pila*) javelins. The *verriculum*, purely a throwing weapon, had a three and one-half foot shaft and a five-inch soft iron head; the *pilum* a five-foot shaft and a nine-inch head, triangular in section and slightly rotated, like the old French bayonet. On the defensive, the *verricula* were thrown and the *pilum* was used as a pike; on the offensive all the javelins were thrown and the Romans fell on with sword and shield.

But Roman javelin fire was used with the idea of discommoding the enemy, clogging his movements and breaking up the rhythm of his attack rather than doing serious damage. Neither type had much penetrative power against armor; and they failed miserably, time and again, against those same desert horse-archers Alexander's javelin-men punctured so easily. No doubt they made nasty wounds when they struck an unprotected spot, but the Romans had no confidence in any missile weapon as the final arbiter of battle.

In the ancient world, the Romans, with the Agrianians of interior Thrace, and the Armenians were the only javelin-using peoples. After the barbarian invasions it came into more general favor. It is a splendid weapon for mountain and forest work, where the range is short and silence and speed are desired. The Vikings made something quite serious of the javelin. We read of Gunnar of Lithend using a spear as tall as himself (well over six feet) yet later throwing it to a considerable distance and right through a shield and the man behind it. The same people attached a sling of sinew to the staff of a short javelin and thus attained good ranges with it. A modern experimenter has thrown a Norse javelin 270 yards with such a sling.

But the javelin at best was no more than an illegitimate cousin of the bow—the small-arm par excellence of the days before gunpowder. There were three classes—the breast-bow, the crossbow, and the longbow.

Only the first two were known in ancient times, and the crossbow was very little used. As has been mentioned, the Romans did not care about missile weapons, and used archers pretty much as they used slingers—as light troops to harass a flying enemy or flank a column of attack. The Egyptian archers, however, who used a wooden breast-bow (that is, a short bow, pulled to breast and shooting a 24-inch arrow) became justly famous.

The breast-bow reached its highest development farther east, where some genius discovered that a bow built up of layers of horn, sinew, and glue, around a wooden core, had a high resiliency. Persian, Bactrian, Parthian and, later, Saracen and Turkish archers, all used bows of this type. The best horn bows have a very heavy pull—all the way up to 100 pounds—and high penetrative power. Their range, however, is something else.

There is an inscription on a pillar at Constantinople, giving the results of some wonderful shooting with horn bows, the shortest distance thought worth recording being 625 yards and the longest (made by a Sultan, of course) about half a mile. With all due respect to the builders of the pillar, this is applesauce. The longest arrow flight recorded in modern times was a shot made by Inigo Simon at Paris. He used a horn bow,

but it was a built-up horn longbow, not a Turkish breast-bow, and the flight was 459 yards. Dr. Saxton Pope has also tested numerous horn bows. The best distance he got was 196 yards, and both his record and Simon's were made with special bamboo flight arrows.

On this (and general) evidence we may conclude that the eastern horn bow under service conditions did not range much above 150 yards. But this range was quite sufficient, considering that it was used by rapidly moving horsemen, accustomed to hitting their game in

the coming of the crossbow whose motive force was spring steel.

The steel crossbow had a range of from 375 to 380 yards, and a point-blank, flat trajectory range of 65 or 70 yards. The range of the horn crossbow was not much less, but it showed greater dispersion and more mechanical fatigue than the steel weapon. It was also subject to weakening by moisture. Both would drive their bolts (quarrels) through anything but the thickest plate armor.

The usual quarrel was about 15 inches long, three inches of this representing the steel head. They made ghastly wounds, not unlike those of a dum-dum bullet.

Early crossbows were wound with a claw at the belt of the Bowman, who held his weapon on the ground with a foot rest, hooked the claw over the string, and then straightened up. As the power of crossbows increased various winching devices were introduced instead.

But the prince of all missile weapons before the age of explosives was the English longbow. As early as Hastings it was in use, and when it had become thoroughly acclimatized, the English infantry could stand against anything in the world. It is unnecessary to remind anyone how they time and again riddled the French feudal cavalry with it; or how they broke up the solid squares of Swiss and Scottish pikemen; even Saracen light horse dared not attack longbowmen after the first two or three experiences.

We have specimens of these longbows which have been both duplicated and tested. The extreme range limit of the war bow was above 250 yards; its effective range from 175 to 200 yards; though Shakespeare does say, "He would a' clapt in the clout at twelve score" (yards). It fired a 30 to 33-inch arrow with a steel head from 4 to 5 inches long, and was deadly up to the full extent of its range.

The peculiar deadliness of the longbow was due to the internal bleeding caused by the rotating arrow; very few men ever recovered from an arrow wound unless they got it in the arm or below the knee. Art Young has killed a grizzly with a single shaft. The stories about archers aiming at, and hitting, the gaps in the visor of a knight's helmet are nonsense, of course, but a great many knights in armor were killed by arrows, for the bow has a penetrative power seemingly out of all proportion to its strength. The English warhead would go right through armor as though it were made of cardboard, unless it were exceptionally heavy and of the very best steel. In a recent test, an archer put a warhead through a perfectly-preserved suit of Damascus, through a layer of padding beneath it, through both sides of the wooden box on which it was mounted, and through the padding at the back.

Only semiroyal personages could afford armor that would stop an arrow at all ranges, and the arrow had far more to do with the decline of armor than the feeble gun of the period. The crossbow, of course, outranged it, but the crossbow was so slow in operation that while its user was winding it up, the longbowman could run the distance to within his own range and still have time to loose off three or four shafts. The way in



LA BALISTE DE SIEGE.

An excellent picture (from an old French print) of a siege-catapult of the bolt-throwing type. Two bolts lie beneath the machine, as does the spike for loosing the trigger. Note the elevating brace beneath the channel for holding the bolts and the hooks which grip the bowstring.

Editor's Note. French caption calls this "Baliste." This is an error.

a vital spot at anything from 100 yards down. Against close order the effective range would be slightly longer.

Romans and Chinese both invented the crossbow. In its earliest form it was made of wood and the string was pulled back by hand. This form of crossbow, beyond which the Chinese never progressed, ranged only about 100 or 150 yards. When the weapon appeared in Palestine during the Crusades, however, the Saracens applied their horn-bow technique to it, and at once it became a powerful weapon. Horn crossbows had a long popularity in Europe and gave way only on

which the Genoese crossbowmen were shot to pieces at Cr  cy and Aljubarrota is illustrative.

Why, then, did the bow give way before the early guns, which could come nowhere near this performance? Speaking as a practising archer, I can assure the reader that it takes ten years to make a good bowman—one who can get a reasonable number of hits at 100 yards. A good arquebusier could be trained in a couple of months. In the days when every Englishman depended on his bow to keep the kitchen supplied, the expenditure of time was not minded, but as the country became industrialized the time investment was too heavy. In France, there were no freeholding peasants to take up the bow; in Italy and the empire, the peasant used the crossbow, and the Spaniard and Scandinavian were javelin-men. Nevertheless, the longbow was so good a weapon that it lingered for a considerable time; James I awarded prizes at archery contests, and in 1785 we find Benjamin Franklin seriously proposing that the regiments of the Pennsylvania line be armed with bows as a weapon superior to the then musket.

Field and Siege Artillery

The first use of missile-throwers that could not be carried in the hand is recorded at the great siege of Motya by Dionysius of Syracuse in 399 B. C. When King Archidamus of Sparta heard of it he made the remark that has been repeated in all ages by military pedants about new inventions, "Now human courage has become useless."

The catapult, the most popular piece of artillery of antiquity, was an overgrown crossbow. It consisted of a vertical frame with three openings. Through the central one went the missile; the two outer openings each contained a skein of some material which would stand a high degree of tension, with an arm thrust through the middle of the skein. The outer ends of the arms were connected by a bowstring which drove the projectile.

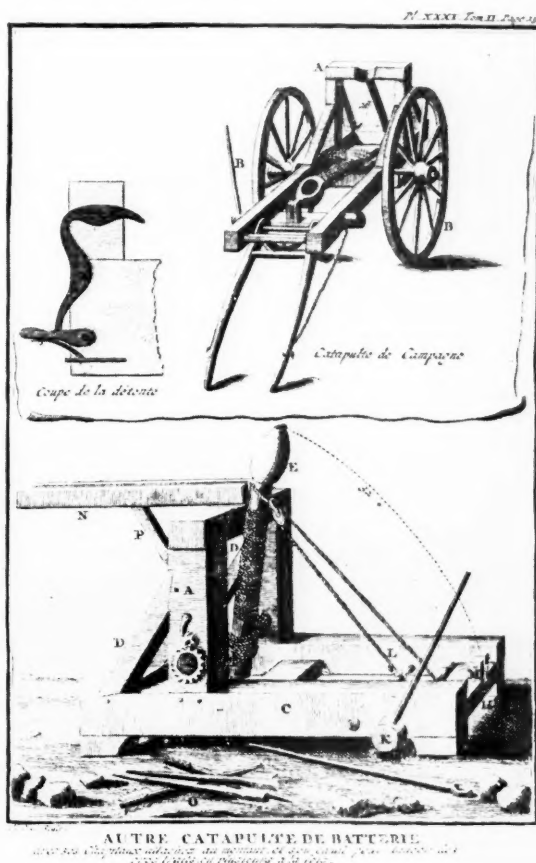
The whole vertical frame was fixed on a pivot for training, and the slide which drove the projectile could be elevated or lowered by a brace.

The power was furnished (usually) by twisted tendons—from the legs of horses or deer or the necks of oxen. Human hair was also used, and various inventors tried other materials. All materials tended to grow weaker with time, though the thickness of the tendons and the high torsion and tension minimized this effect. An arrangement like a miniature ship's capstan was placed at the end of each skein where it passed through the frame, to permit of periodic tightenings. The largest models had arms three or four feet long and skeins from six to eight inches in diameter.

Catapults came in two classes—stone-throwers and bolt-throwers, both working by direct fire. The bolt-throwers were rated by the length of their projectiles; stone-throwers by the weight of the stone they threw. The bolt-throwing machines seldom used anything longer than a three-span (28-inch) missile, which looked like an enlarged crossbow bolt and was usually fluted at the base, sometimes with a twisted flute to give a

rifled effect. There were larger bolt-throwers, of course; Agesistratus had one which threw a lance six and one-half feet long, and there were other monsters in a water-battery at Syracuse. But the three-span catapult was the standard, both as a piece of field ordnance and as naval artillery.

It ordinarily had a range of from 700 to 800 yards,



Above: An onager of the type ordinarily attached to a legion as field artillery.

Below: A "siege-gun" onager.

Both drawings give a very good idea of the working of the machine, but they should be shown with slings instead of spoons.

Editor's Note. French caption calls these "catapults." This is an error.

with a good deal of accuracy. It also seems to have had high penetration power; one of them drove a bolt through three men (presumably in bronze scale armor) at the siege of Rhodes. Major Schramm of the French artillery made one of horse tendons which shot a 32-inch bolt and penetrated an iron plated oak shield at a distance of 400 yards.

The stone-throwing catapult was in more general use, particularly for siege operations. The projectiles were carefully shaped; both Romans and Greeks sometimes made them of hard-baked clay around a stone core. This missile burst on impact and could not be returned. Most stone ball-throwers used quite a small missile (eight or nine pounds) and with it obtained an effective

range of from 400 to 450 yards. Larger machines threw heavier projectiles, but without much increase in range.

Josephus, describing the siege of Jotapata, remarks that the Romans constantly used catapults throwing 54-pound balls against that town. At a distance of 450 yards they made all movement unsafe in sections of the fortress commanded by the catapults, and from 600 yards got a good many hits. A man at the side of the historian was struck by a ball from this distance with such force as to tear his head off.

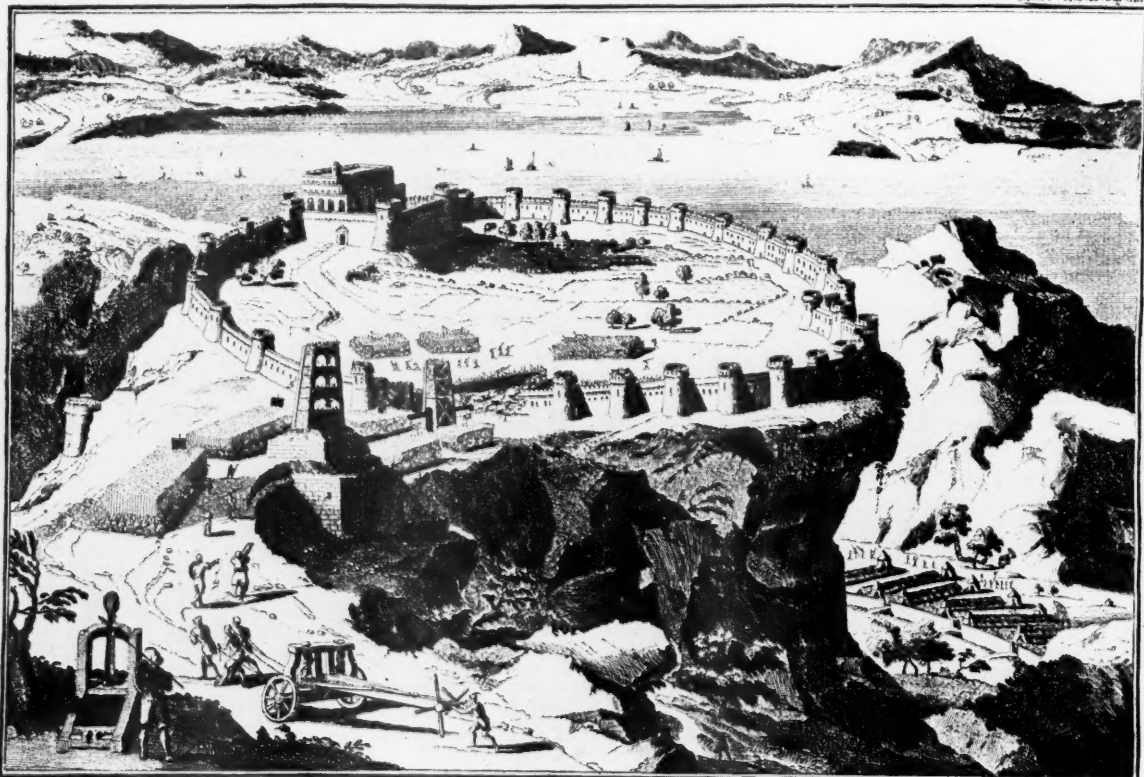
Larger ball-throwers were siege pieces for the most part. The largest size recorded were capable of throwing a 167-pound ball; Archimedes designed several of this size for the Syracusan navy.

From the time of King Lysimachus of Thrace (third century, B. C.) catapults were much used as field artillery. Lysimachus had an "Indian problem" on his northern frontier, and kept the tribes in check with a system of blockhouses on the roofs of which he mounted bolt-throwing catapults. They proved such a success that they were adopted throughout the world. In Caesar's time each gate of a Roman camp was habitually defended by a ball-thrower of 18 pounds weight of missile, and Tacitus tells of a battle between Vitellius

and Vespasian in which the former nearly brought off the victory by concentrating his catapults opposite Vespasian's best troops and breaking up their charge with artillery fire—quite a modern expedient. Under the Roman empire, a 6000-man legion carried 55 catapults as regimental artillery, mostly bolt-throwers, as ball-throwers were inconvenient for field operations on account of the size and weight of the missiles. There were also six onagers per legion. All were mounted on wheels, and eleven men of each century (company) were told off as artillerists, with an officer whose title signified "regimental chief of artillery."

Divisional artillery, in the form of heavier machines, was carried when two or more legions joined. The heavy catapults and onagers which this represented were carried in knocked-down form with the divisional baggage. The field artillery was supposed to keep up with the infantry on all occasions.

In medieval times the catapult, as a piece of field artillery, mostly passed out of the picture. The excellence of medieval cavalry (which could ride right over such artillery as there was) had something to do with this decay; the increased fire-power of medieval infantry, due to the longbow and crossbow, which made artillery less useful, had more; but the really determining



TERRASSE SURPRENANTE DES ROMAINS. AU SIEGE DE MASSADA. CONTINUEE ET PUSSEE JUSQU'AU PIED DU MUR DE LA FORTERESSE. LA PETITE ELEVEE SUR LA GRANDE ET SA TOUR DE CHARPENTE DRESSEE DESSUS.

An onager and a catapult are shown at the left. The latter, mounted on wheels, is the ordinary piece of Roman field artillery. The onager is relatively too small as compared to the catapult. It should be really twice as large, being a "siege-gun," and should also have a sling instead of the spoon. From a very old French print.

cause was probably the lack of those wonderful Roman roads which enabled the wheeled traffic of a legion to keep up with the marching infantry.

We have mentioned the onager. This was an altogether different machine, operating by indirect fire. It had one very large skein, placed across the bed of the machine, parallel with the ground, and a single arm, which, when released, rose straight up to strike a bar parallel with the skein. In Roman times the arm was always fitted with a sling, which increased the range of the piece by about one-third. In later ages a spoon at the end of the arm took the place of the sling, the invention of the trebuchet having pretty much put the onager in the background.

Its advantage was high-angle fire and the fact that it could cast heavy and less shapely stones than the catapult. Its performance was not vastly different from that of a catapult of similar size, but its simpler construction made it popular for siege work. One illuminating note (from Philo) informs us that walls 15 feet thick were safe against onagers if they could be kept at a distance of 180 yards, and the same author recommends for the defense of every 30 yards of a city wall, one onager throwing ten-pound missiles and two bolt-throwing catapults.

The trebuchet was a French invention of about the twelfth century. It was simply a long pole working up and down on an axle. The shorter arm of the pole carried a heavy weight; the longer a sling from which the object to be thrown was discharged. Like the onager it worked by high-angle fire, but it had the ad-

vantage of throwing a missile whose weight was limited only by the capacity of the axle to stand it. The average range was not high, from 350 yards down.

Some enormous trebuchets are recorded. A single machine demolished at the Tower of St. Paul during the siege of Orleans furnished 26 cartloads of timber. Another flung dead horses into Liege during the siege of that city, and at the siege of Chateau Gaillard 400-pound stones were sent thudding against the walls of the fortress from a trebuchet with a 20,000-pound counterweight. Obviously no wall could long withstand such treatment.

Why then, were not more castles hammered down by them? Well, the main reason seems to have been because the castles were defended by that stout old soldier, General Ignorance. In the age of the trebuchet, siegecraft was at a very low ebb. Very few people knew anything about the proper placing of engines to make a practicable breach in walls; some of the few would not use their knowledge for fear of violating the absurd conventions of chivalry. It was "unchivalrous" to concentrate all your engines on one spot where the defense would not have a fair chance to shoot them down. Not until the advent of such generals as Papa Tilly and Gustavus Adolphus, who stopped playing war as a game and meant deadly mischief at every stroke, was this tradition done away with. And by that time the cannon had proved itself a far better piece of artillery than trebuchet, onager, or catapult.



Photo from Wide World Photos
**FIRST HEAVY SNOWFALL OF SEASON AFFORDS
 CADETS OPPORTUNITY TO PLAY SNOW POLO**

Wayne, Pa.—Even though today marked the first day of Spring the weather man showered New York, New Jersey and Pennsylvania with plenty of snow—the first real snowfall of the season. Down here at the Valley Forge Military Academy the cadets were given their first opportunity to trot out their mounts to engage in a real snow polo game. Brooms and a basketball replaced the mallet and polo ball.

Medical Department in the 1st Cavalry Division Maneuvers

Lieutenant Colonel Edgar King, M. C. Division Surgeon, 1st Cavalry Division
Major Robert P. Williams, M. C. Commanding 1st Medical Squadron

THE Maneuvers of the 1st Cavalry Division, May 22 to June 1, 1931, afforded an excellent opportunity for some very interesting experiments in the Medical Department. The problem of the evacuation of sick and wounded men and animals from cavalry operating under conditions of modern warfare has been studied very little. In general it has been said to be similar to the evacuation problem in the infantry division. When, however, it was announced that the operations would take place in an area 5,100 square miles in extent, practically uninhabited and with only trails across the desert for roads, water frequently twenty miles away, troops operating as much as a hundred miles from their base and engaged for several days in mountains 9,000 to 11,000 feet above sea-level where wheeled transportation could not reach them; when we realized all of these conditions we began to visualize points of dissimilarity.

This then was an opportunity not to be lost. The personnel available was barely enough for a very much attenuated evacuation system, but one sufficient to allow a solution of organization, equipment and tactical questions as they arose. Much of the equipment had to be improvised. Our solutions were probably not the best, but they could be rated as "satisfactory" in that they worked, and the experience gained has been very valuable. "Excellent" solutions should evolve only after participation in more maneuvers.

Medical Department units in the cavalry division may be divided into two major echelons: first, small detachments attached to cavalry, artillery and engineer units (the Squadron, Battalion or Regimental Medical Sections) and second the divisional evacuation and hospitalization unit: the Medical Squadron.

Insufficient personnel meant that both echelons could not be adequate for complete functioning. Heretofore it had been the custom to break up the medical squadron and parcel out its men and ambulances to the regimental detachments. Regimental surgeons and veterinarians were then held responsible for the collection and treatment of casualties and their evacuation to fixed hospitals. This method assured prompt and efficient first aid, but such an evacuation scheme was wasteful of ambulances, deprived the Aid Stations of their mobility, since there was no unit behind them to take over their wounded, and it afforded no opportunity for treatment between the hasty first aid at the front and the fixed hospital back at the base. In this way much valuable individual ex-

perience could be gained, but there was no opportunity to work out medical tactics. In other words the Medical Department was using tactics on maneuvers which it could not use in war.

In these maneuvers it was decided to build up the medical squadron at the expense of the regimental detachments. It was realized that under this scheme adequate treatment could be assured the actual sick and injured only if all units of the medical squadron functioned efficiently. It was a more complicated method, but it more nearly resembled participation in actual combat.

Medical tactics could be tested. Casualties could receive additional treatment at the stations of the Medical Squadron on their way to the rear. The medical detachments with the combat troops would retain their mobility.

Regimental Medical Detachment

Each cavalry regiment was allotted two medical officers and five enlisted men of the Medical Department. This allowed one surgeon to accompany each squadron in case the squadrons were separated. Under Tables of Organization each detachment had an escort wagon to carry its aid station equipment. But we had been warned that the regiments would leave all wheeled transport behind on entering the mountains. They were to be in the mountains for several days, too long for the contents of the medical belts



Squadron Aid Pack. Two wooden boxes containing dressings and medicines. Splints and a tent fly are lashed between the boxes. This equipment is carried on the Phillips Pack Saddle, the pack horse being led by a mounted man. By using this method of transportation, unit surgeons always had equipment for a small aid station right with them.

to suffice. During this period the cavalry was to be supplied by pack animals. The simplest solution therefore was to carry aid station equipment by the same means. Wooden boxes, reinforced with iron strapping, were constructed and provided with hangers, so that a Phillips pack saddle would take two boxes. A pair of boxes carried the quantity of dressings and medicines which we considered adequate to care for a regiment for a short period of time. Between the boxes and on top of the saddle, splints and a tent fly were lashed. The total weight was about 200 pounds. Each regimental surgeon was given at least one of these packs, which we called the Squadron Aid Pack, because in actual combat one such pack would be allotted each squadron. These first pack boxes were rather crude. Boxes half or two-thirds as large and built of lighter material would have been better. Clumsy as they were, they gave very little trouble; the horses carried them as well as most of the other packs in the division. Further experiments with them will produce an extremely valuable addition to Medical Department transportation. All members of Regimental Medical Detachments were mounted, one of the men leading the pack horse.

With mounted troops, the escort wagon is of limited value for regimental medical detachments. Regiments are small, as compared to the infantry regiment, so that less material need be carried. But what is carried must accompany or be near the troops at all times. The cavalry uses light spring wagons and pack animals. Both showed their ability to keep up and should prove sufficient for the medical needs of cavalry at peace strength. At war strength regiments should have a reserve of medical supplies on an escort wagon with the regimental field trains.

Special Troops, Cavalry Division—This unit consists of its headquarters, the division headquarters troop, the signal troop, ordnance company (maintenance), an armored car troop attached (for administration) and attached Medical Department. Peace time total about 230 men and 99 animals. The elements serve at various points when in the field according to the nature of the operations. For units not near the forward or rear echelon, medical service was furnished by attaching aid men and by reliance on the surgeons of units to which the elements were attached or near which they were serving. This proved satisfactory in these maneuvers and it is believed that similar arrangements would serve in war. Consideration should be given to substituting a light truck ($\frac{3}{4}$ to $1\frac{1}{2}$ ton) for animal drawn transportation as the combat medical vehicle with this unit, as it is now entirely motorized excepting only the headquarters troop. Enlisted men, Medical Department (Veterinary Service) should be attached to the Headquarters Troop when necessary.

Combat Engineer Squadron—This was represented by a motorized troop. Medical service was satisfactorily rendered by an attached aid man, carrying a reduced Medical and Surgical Chest, man and chest being transported on a motor vehicle of the troop. This unit was generally with or near an organization

having a medical officer. In war or maneuvers with the entire engineer squadron present, Medical Department personnel would be attached as per T/O. The veterinary service with the unit is now a rather small problem as two of the three troops are motorized, leaving but 136 animals.

Division Trains (Q. M. C.)—Medical and veterinary personnel was attached as indicated for a cavalry regiment. The veterinary work is important, the number of animals being large. Pack trains, when detached, secured medical and veterinary attendance from the unit to which attached.

Due to the long distance covered by these trains in this maneuver, they were usually too far from the medical squadron to get ambulance service by direct contact.

They were, therefore, directed to call on the Surgeon's Office at the rear echelon, which office secured necessary motor ambulance service. To cover such contingencies it was necessary at times to detach one motor ambulance to serve the trains and the rear echelon.

1st Medical Squadron

The 1st Medical Squadron consisted of a squadron headquarters, 1st Ambulance Troop and 1st Veterinary Troop, a total of two officers and fifty-seven enlisted men. As organized, it could provide only for ambulance and veterinary service. It had no personnel trained to maintain contact with the medical detachments of the cavalry and artillery or effect the collection of their casualties. Most important of all, it lacked any equipment or organization capable of rendering temporary care for the actual sick and injured. Its troops were too small to assume these duties. In the medical regiment of the infantry division these functions fall to the collecting and hospital companies.

The Division Commander offered to help in this experiment by the detail of a limited number of men, enough to form one small troop. If we used them for a collecting group, the gap between the combat troops and the forward limit for ambulances could be bridged. This gap proved to be anywhere from two to twelve miles deep. It was generally due to the tactical situation, but in the mountain fighting the terrain was sometimes impossible for wheeled vehicles. In actual combat the bulk of the casualties would occur in the cavalry and artillery; and on maneuvers those same units would have some men requiring evacuation because of actual illness or injury. Only a collecting troop could relieve the combat units of those casualties; and they had to be relieved, first to give the casualties adequate treatment and second to allow the combat forces to retain their mobility.

On the other hand if the division was going to operate a hundred miles from a fixed hospital, a hospital troop would be of great assistance. But a collecting troop could furnish temporary care for the casualties in its collecting station. No equipment for a hospital station was available and neither were men, trained for duty in such a station.

Most of the men detailed to the squadron would be trained in the work of line troops only. We decided to use them to form a provisional collecting troop and extend the ambulance haul back to William Beaumont General Hospital in El Paso.

Three officers and twenty-three enlisted men were detailed to the medical squadron. The enlisted men came from the Post Medical Detachment, the Field Artillery, the Corps of Engineers, and the Cavalry.

The squadron was then organized as follows:

Squadron Headquarters:	1 Major, M. C. 1 Lieutenant, M. C. (part time only) 3 enlisted men.
Provisional Collecting Troop:	1 Officer 20 enlisted men
1st Ambulance Troop:	1 Officer 38 enlisted men
1st Veterinary Troop:	1 Officer 19 enlisted men

The Collecting Troop

The Provisional Collecting Troop was organized into a collecting station consisting of men who had served in the Medical Department, while the artillerymen, cavalrymen and engineers formed the contact and litter bearer section. The contact section was simply a small group of mounted men called contact agents. When combat was imminent or units of the cavalry or artillery were to be separated from the main body of the division, the troop commander sent contact agents to report to the unit surgeons. These agents acted in a liaison capacity between surgeons and the collecting troop. Usually two agents were sent to each cavalry regiment. The regiments had two squadrons, so this arrangement allowed the regimental surgeon to send one agent out with a detached squadron, or even smaller unit. When a unit suffered casualties, its surgeon dispatched his agent with a message to the medical squadron, stating how many and what kind of casualties he had, where they were and what moves and additional casualties could be expected from his unit in the immediate future. Casualties able to ride accompanied the agent on their own mounts. In that case his speed, of course, was dictated by the condition of the casualties. It was never less than four; often it was as high as seven miles per hour. Agents had to be resourceful and reliable, capable of finding their way alone over long distances and without unnecessary loss of time. Since they constituted the link between the combat troops and the medical squadron, their speed and efficiency determined the rate of evacuation. On reaching his troop, the agent delivered the message from the unit surgeon, and the collecting troop commander determined what means to send forward to evacuate the remaining wounded.

Because of the distances, hand litter carriage was not used during the maneuvers. The litter bearer section had three methods of evacuating the aid stations. Most of the wounded could ride their own

mounts back to the collecting station; litter cases were brought back on pack horses or in a two-wheeled cart. The cart had been developed at the Medical Department Equipment Laboratory and sent here for field tests. It was of very light construction, carried two litter cases, one above the other, and was drawn by one mule. It was only a little wider than a litter, and went everywhere except over the steepest grades, when the footing was too insecure for the mule. Its springs were long and flexible, and cases rode more comfortably in it than in the animal-drawn ambulances. Throughout the maneuvers this cart proved a very valuable means of evacuating the more serious cases.

Weeks before the maneuvers the division had been warned that part of the fighting would be in the



Experimental Litter Cart, developed by the Medical Department Equipment Laboratory, Carlisle Barracks, Penna., and used by the Provisional Collecting Troop, 1st Medical Squadron. The cart is of light construction, very little wider than a litter, and went everywhere except over the steepest grades.

Sacramento Mountains, where wheeled vehicles could not possibly be used. A study was made of previous cavalry campaigns with the object of adopting the methods of evacuation which seemed practicable for our conditions.

The cavalry planned on using the Phillips pack saddle for their supply. We began experiments with this saddle to determine its practicability for evacuation. The saddle is essentially a steel frame resting on a large felt saddle-pad and is held in place by harness. Several means of fastening loaded litters to it were tried. Our object in each case was the construction of some method of securing the litters to the saddle with a proper distribution of the weight on the horse and so as to allow the patients to ride as comfortably as the gait of the horse would permit. Pack litters would only be used as a last resort for transporting wounded. But throughout our maneuvers situations were frequently encountered where no other means were practicable; situations where casualties occurred five to twelve miles from the collecting station. When the intervening terrain did not even admit the use of the litter cart, and carrying litters by hand was a physical impossibility unless double litter squads (eight carriers per litter) were provided; in these instances we considered that pack litters were called for.



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The Cacolet in use. The two litter cases had to be of approximately equal weight in order to balance. This approximation was easily obtained by carrying a canvas bag into which dirt was placed to bring up the lighter litter's weight.

Our first device, the cacolet, was a method of transporting sick and wounded that has been used for centuries in Egypt and the countries to the east of the Mediterranean. It was used extensively on the camels in Allenby's Palestine campaign. Our model was made in the Post Ordnance Shop from illustrations and descriptions in the "Official History of Australia in the War of 1914-1918." The cacolet consisted of light steel hangers attached on either side of the pack saddle. Each hanger received a standard litter, so two patients were carried, balanced, one on either side of the pack horse. This was our most successful method of pack evacuation.

General Allenby's principal objection to the cacolet was the discomfort to the patient caused by the swaying, uneven gait of the camel. Our pack horses largely overcame this objection. The patients had to be of approximately equal weight in order to balance. This approximation was easily obtained by providing a canvas bag into which enough dirt or sand was placed to bring up the lighter litter's weight.

A litter carrier (two-litter type) for the Aparejo was described in Daly's "Pack Transportation, Quartermaster's Department, 1910." Slight modification was needed to adapt it to the Phillips pack saddle. The carrier consisted of heavy leather slings attached by steel clamps to the litters. One horse carried two patients by this method, which was in effect simply the substitution of slings for the steel hangers of the cacolet. We preferred the cacolet, as the rigid hangers gave more room for the patient, and loading and unloading the horse were facilitated.

From the same Daly's manual we obtained the description of another litter pack, the litter carrier (one-litter type). This consisted of a steel frame made in the Post Ordnance Shop. The frame secured one standard litter to the saddle over the horse's

spine. Our experimental model was higher than need be, but it is believed that this carrier, with further experiment, will develop into a valuable means of evacuation.

For our pack litters we had to use selected horses, paying particular attention to a quiet disposition and smooth walk. After the animals became accustomed to the litters this method of evacuation was safe, much more rapid than hand-carriage and more economical of men. On the march the pack horses wore only their saddles, the litters being in the wagons. The pack horses were led by mounted men. Travelling thus light they arrived at the site for the collecting station without becoming fatigued. Here empty litters were adjusted to the saddles and from then on the animals were always led by dismounted men. This slowed the gait to $2\frac{1}{2}$ miles an hour or less and also prevented accidents.

The objection was raised that these animals were loaded in excess of the 200 pounds prescribed for the cavalry pack horse. That is the maximum load with which animals can keep up with the cavalry. But the cavalry is speaking in terms of walk, trot and gallop with 30 or more miles a day. Our pack horses, with two loaded litters, often carried about 400 pounds, but such loads were carried only for relatively short distances and never at a speed even equaling a horse's walk. We used the same four pack horses throughout the maneuvers, never had a sore back and on their return to Fort Bliss all were in excellent shape.

We considered the travois, but discarded it as unnecessarily rough on the patients.

The litter bearer section brought the casualties to the Collecting Station, a small wall tent with a Field Medical Outfit No. 1, water, food, an officer and several enlisted men trained in the temporary care of the sick and wounded. The Field Medical Outfit was sufficient for all our needs. Another time, however, we would reduce its weight and carry it on a light wagon, so



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Daly's Litter Carrier (two-litter type) in use. Although quite similar to the cacolet, the latter gave more room for the patients.



Reproduced from Official Film No. 775. Courtesy of Chief Signal Officer, U. S. Army.

Daly's Litter Carrier (one-litter type). The patient must be secured to the litter. We used a system of litter slings and surcingle.

that the station could be established without waiting for the arrival of an escort wagon. This station was evacuated by the ambulance troop.

1st Ambulance Troop

This troop had six animal-drawn and six motor ambulances. Its operation followed closely similar units in medical regiments. On the march it moved in two sections, the animal-drawn section at the tail of the medical squadron. This section picked up any march casualties left by the division. The motor section followed by bounds, catching up with the animal-drawn section every fifteen minutes. At these contacts patients were customarily transferred to the motor ambulances. When required, one of the motors left the column and evacuated its cases back to the hospital.

In combat usually both an animal-drawn and a motor ambulance shuttle were established. The animal-drawn shuttle covered the short hauls and poor roads near the front, the motor shuttle covering the entire distance from the Ambulance Station back to the fixed hospital. Thus, the motor shuttle represented the Army Ambulance Service as well as the divisional. This was necessary since the medical squadron had no hospital troop with which to establish a mobile hospital in the field.

The Hospital

William Beaumont General Hospital served as the hospital station for all elements throughout the maneuvers. From a maneuver view point it was a Zone of the Interior installation.

Veterinary Service

Regimental Veterinary Department

A regimental veterinary surgeon and five enlisted men, all mounted, accompanied each cavalry and artillery unit. Equipment for a very small Veterinary Aid Station was carried on an animal-drawn ambulance, converted into a light spring wagon. This method of transportation worked very well; ordinarily

the aid station equipment was where it was needed. Although in accord with modern cavalry practices, our method was contrary to that laid down in Tables of Organization. Under those tables the peace strength cavalry regiment should carry its veterinary aid station in the same escort wagon as its regimental aid station (medical). Had we followed that method, regimental veterinarians would have had their equipment only occasionally during the maneuvers and probably never when most needed.

1st Veterinary Troop

The 1st Veterinary Troop performed the same functions for animal casualties as the collecting and ambulance troops performed for men. Veterinary contact agents established liaison with unit veterinarians. The lead line performed the functions of collection. It is essentially a moving picket line, the ends of which are attached to a special harness on anchor horses. The line is kept taut at all times by these horses, and to the line the animal casualties are secured by their halter shanks. Most animal casualties when relieved of the weight of rider and equipment could be handled by this method. For those too seriously injured or too ill, the troop had a motor veterinary ambulance. But its capacity was only one animal, so that only a very few casualties could be handled this way. For long hauls and the bulk of the seriously sick, portée trucks of the Division Quartermaster Train were used. These trucks were especially adapted for transporting animals, having tail gates that could be used as loading ramps. All animals of the division had been trained by being loaded into these trucks. The troop carried equipment for a small Veterinary Collecting Station on its escort wagon. After temporary care and treatment at this station, animal casualties requiring it were loaded into the portée trucks by the troop and evacuated to the Veterinary Station Hospital at Fort Bliss.

Division Surgeon's Office—For the movement, during the first 36 hours, the rear echelon remained at Fort Bliss. During this period the Division Surgeon left the office in charge of his assistant while he accompanied the Brown Forces. Rear echelon of Division headquarters then moved into the field and was established at Orogrande, New Mexico, the forward



Motor Ambulance of the 1st Veterinary Troop.

This was an excellent means of transporting the more seriously disabled animals, but because of its limited capacity only a few casualties could be handled by this method.



Veterinary Troop of the 1st Medical Squadron unloading animal casualties from portée trucks of the Division Q. M. Train. The special tail-gate served as a loading ramp, and each truck had a capacity of four animals.

echelon being at a camp about 30 miles northeast and about 6 miles within the Sacramento Mountains. It proved best for the Division Surgeon to remain most of his time at the forward echelon, visiting the rear echelon by motor once daily if practicable and keeping in radio communication at all times. It is believed that the Surgeon of a Cavalry Division must be at the forward echelon to be of service. He also must, under modern conditions, do a great part of his travelling within the division area by motor. This does not mean that he should not have a mount available: certain phases of his work can only be done mounted.

His office is well enough left at the rear echelon. In operations similar to these maneuvers it serves a most useful purpose as a check on medical troops, casualties, etc. leaving the division area.

During the maneuvers the Division Surgeon acted solely as a staff officer, leaving the command of the medical squadron to another medical officer. This worked well and is, we believe, the best method.

Airplane Ambulance—In operations similar to these maneuvers the proper care of seriously wounded presents a difficulty which it is believed might in greater part be met by the use of airplane ambulances.

It is not very practicable to operate a mobile surgical hospital with a cavalry division, certainly not under most conditions. A suitable airplane, available on call, would often save life. Two patients were evacuated by plane from a point 50 miles from William Beaumont General Hospital to the hospital within less than one hour elapsed time. The advantage of such evacuation over ambulance haul for the seriously wounded is evident. Another point to be considered is that an airplane ambulance could be available at once, should our cavalry have to respond to an emergency call for immediate field service.

The Maneuvers

On May 22d, war was declared between Texas (Brown) and New Mexico (White). Both belligerents were concentrating large forces several days march from the border, while the troops of the 1st Cavalry Division, divided between Brown and White, covered the two concentrations.

The White covering force, a reinforced cavalry regiment, had a small medical detachment with one motor and one animal-drawn ambulance attached. These ambulances were declared neutral—and authorized to evacuate patients from the White force across no-man's land and through the Brown lines to William Beaumont General Hospital.

The Brown covering force consisted of the 1st Cavalry Division, less one brigade. This force had the skeletonized evacuation service which we had organized, and it is proposed to follow this Brown force through the maneuvers, showing the relation between the cavalry tactics and the medical tactics which we employed.

In each situation, the regimental surgeon and veterinarian with their small detachments should be visualized as parts of the regiment they served. As men and animals were injured or became ill, they attached diagnosis tags and gave such first aid treatment as was available, generally using only the contents of their belts and the squadron aid pack, turning the patient over to the medical squadron for future treatment and evacuation. Only when the regiment went into camp or bivouac or when it was to hold a position for several hours or more, did the surgeon establish his aid station.

Hostilities Commence

At dark on May 22d the reinforced 2d Cavalry Brigade (the Brown cavalry force) with an offensive mission marched in two columns to invade White territory. The medical squadron (less motors and escort wagons which joined serials of similar vehicles) followed the main body of the left column. Before the march started contact agents from the collecting troop were sent to report to each regimental surgeon. The roads used by the two columns were parallel and less than a half mile apart. Our method kept the medical squadron intact, just behind the bulk of the brigade, and relied upon the mounted contact agents bringing across any calls for ambulances from the right column. The plan worked successfully.

The march was of 18 miles. One column marched on the shoulders of a paved U. S. highway. This column gave us our march casualties, men and horses being frequently blinded by automobile lights and several horses slipping on the paving or falling into roadside ditches.

Bivouac was reached a half hour after midnight. Here a serious deficiency in the medical squadron was demonstrated. The squadron carried all its supplies and equipment on three escort wagons, one for each troop. These wagons were attached to the Division Trains for the march and were due at bivouac just as the squadron was due to leave. Which meant that we had no equipment to establish a Collecting Station and a Veterinary Collecting Station in the bivouac. In actual combat this would have been very serious. The brigade was in bivouac less than four hours; it had driven back the White border detachments and seized a White town. The troops, therefore, had sustained casualties, and it was the mission of the medical squad-

ron, immediately on arriving in bivouac, to relieve the regimental detachments of these casualties, to give the wounded men and animals further treatment and to evacuate them to the hospitals at Fort Bliss. Also, all dressings, splints and blankets used by regimental detachments in treating the casualties should be replaced by the medical squadron. Further, this was just the first march of the campaign. When the brigade again marched the medical squadron would be directed to follow without distance; if animals were to be watered and men and animals fed and rested, before the next day's march commenced, it had to be done at once. Of all these duties the only ones that the medical squadron could accomplish were relieving regimental detachments of their casualties, evacuating those casualties to Fort Bliss, and watering the animals. The discrepancy between what could be done and what should have been done was due to the complete lack of spring wagons in the medical squadron. Such vehicles would have accompanied the squadron, and the equipment for collecting stations, the medical supplies and the rations and forage would have been available from the moment bivouac was reached. As it was, all these items were hours behind and not available when needed. One spring wagon is authorized for the squadron in Tables of Organization, but it had never been issued. Of course the situation was met by emergency measures, and all the missions were accomplished except that the men got no rest.

At daylight the brigade marched, and the medical squadron accompanied it. To correct the deficiency a squadron order declared that one animal-drawn ambulance was henceforth a spring wagon. There should have been one such vehicle per troop, but that would have meant the conversion of half the animal-drawn ambulances. The squadron commander was present at all division conferences and was immediately informed by the Division Surgeon of changes in the tactical situation and of probable future developments. From all of this information the load of the spring wagon was changed in each camp to meet the needs of the next march, and the squadron was always accompanied by enough equipment to accomplish most of its missions.

The second day's march was a long one, at least in point of time. About 4:00 A. M. the brigade marched in one column with strong advance and flank guards. The medical squadron (less escort wagons) followed the main body, its motor ambulances moving by bounds so that they caught up with the squadron every 15 minutes. The day was a series of small cavalry engagements between the advance and flank guards and White delaying forces. Perfect contact was maintained with all elements. The medical squadron, following the combat troops in this advance deep into enemy territory, would have furnished perfect evacuation, as all casualties would have occurred within a few hundred yards of the road. It is probable that stations of the squadron would not have been established during the march. Since the movement was only preliminary to the main attack, which might occur at any time, all troops were kept mobile, and all casualties

which would be unable to participate in the attack were evacuated. Typical handling of casualties that day was as follows: first aid was applied by the patient or a companion or the unit surgeon. If the injury was serious, the surgeon despatched his contact agent with a message, and the collecting troop turned over the appropriate transportation to the agent, who guided it to the casualty and then rejoined his surgeon. The litter cart was invaluable for this work. On either side of the road was American desert, sand, mesquite and cactus, with small, sudden arroyos. Any part of it could have been negotiated by animal-drawn ambulances, very little by motors, but the cart was small and inconspicuous and had a much better chance of getting through hostile fire. The patients preferred it to the animal-drawn ambulances when going across country. The litter cart delivered the cases to the ambulance troop where they were transferred to animal-drawn ambulances, inspected and re-dressed. When an ambulance-load was accumulated the ambulance dropped to the rear of the column; and at the next contact with the motor column the load was transferred to a motor ambulance which was dispatched to the hospital.

In the veterinary service similar methods were employed. Animal casualties were dressed and tagged by regimental veterinarians and turned over to a contact agent from the veterinary troop. He led them to his troop where they were inspected, re-dressed and put on the lead line. Animals which could not keep up were cut out of the lead line and left by the roadside in care of a mounted man of the troop, who hailed the motor veterinary ambulance or a portée truck and thus they were dispatched to the hospital, the mounted man rejoining his troop.

In the afternoon the enemy made a stand along a ridge at Orogrande; when the medical squadron received the brigade attack order, troop commanders were assembled and the squadron commander dictated his orders for the attack. Since the brigade staff had transmitted the intelligence that the attack would be short and decisive, sites for stations were selected by map reconnaissance and were considerably in advance of the area known to the squadron at the time the order was issued.

Half an hour later, while advancing to the positions ordered, word was received that the enemy had evacuated his position and that all troops were to proceed to Orogrande and bivouac there under peace conditions until midnight Sunday.

The day had been hot, troops were without water except that in their canteens. They were thirteen hours in the saddle. The road distance for the day was 34 miles, but that figure bears little relation to the distance travelled, when reconnaissance and back trips of contact agents and evacuation vehicles are considered. Throughout, perfect contact had been maintained and it is believed that the medical squadron would have furnished perfect evacuation in a similar combat situation. During the day seven men and two horses, all actual casualties, were handled by the squadron.

On arrival at camp an ambulance immediately visited each regimental aid station to carry any casualties to the collecting stations for men and animals. There cases were treated and evacuated or returned to their organizations during the night. In the morning a similar visit was made just before the march commenced, to assure that the combat troops were not encumbered with any non-effectives. Similarly at the end of a march all contact agents returned to the squadron, where man and horse were fed and rested. This relieved the combat troops of the burden of caring for them, gave the officers of the medical squadron an opportunity to question them in detail about the day's events and permitted the replacement of an exhausted man or horse. Contact agents rejoined their regimental surgeons just before the march was resumed. All the actions mentioned in this paragraph were performed as a routine at each halt for the night.

The offensive was resumed at midnight the following day. The medical squadron was now detached from the brigade and reverting to divisional control was given orders to follow the brigade, which was to march at daylight. For the march, one animal-drawn ambulance was attached to each cavalry regiment, in addition to the contact agents sent out by the collecting and veterinary troops.

The medical squadron followed the brigade at three hours distance, the 24 miles across the desert to Ditch Camp, at the foot of the Sacramento Mountains. The march was without particular incident except for one halt of four hours, due to the tactical situation. In the late afternoon the brigade finally succeeded in driving the Whites into the mountains, and troops were concentrated for the night at the only place where water was available.

All motors in the division were detached and left in Orogrande. When Ditch Camp was reached arrangements were made for evacuation by motor. The camp of the medical squadron was near the Brigade C. P., and the squadron commander was allowed the use of the brigade radio. If it had not been for this courtesy it is difficult to see how evacuation could have been accomplished. The tactical situation allowed only single motor vehicles to go forward from Orogrande, and even this movement was to be kept at a minimum. The situation was perfectly logical and one which might be expected frequently. It has led to much thought, discussion and experiment on the subject of communication for the squadron. We can't always expect to transmit messages over an instrument which is busy with tactical orders. At Ditch Camp our only other means of communicating with Orogrande was by mounted messenger, and the distance was 24 miles or five hours.

The only practicable motor route was not that over which the troops had marched. To familiarize all his drivers quickly with this route the ambulance troop commander followed an ingenious method. A second driver displaced the orderly whenever an ambulance left Orogrande for Ditch Camp. On his return to Orogrande this second driver has been twice over the road and was now qualified to drive his own ambu-

lance over it and at the same time act as guide to a third driver.

That night and the next day our cavalry drove the enemy deeper into the mountains. One regiment operated up Culp's Canyon, a squadron up Grapevine Canyon and another squadron climbed 2000 feet directly up the face of the mountain (extreme grade). The attack was thus in three columns over a broad front, the columns being separated by from two to five miles, with high mountains between. They were not linked by any communicating trails. As there was no way to foretell which of the columns would suffer the bulk of the casualties, it seemed poor tactics to attach any elements of the medical squadron. Reconnaissance showed that animal-drawn ambulances could be sent up the canyons, but litter cases on the mountains could be brought out only on pack litters or by hand carriage. Ditch Camp was centrally placed for all columns and had the only water. The medical squadron was kept there, ready to send whatever was needed by the shortest route to any column. Collecting, Ambulance and Veterinary Collecting Stations were established.

That afternoon two litter cases in serious condition were reported 15 miles up Culp's Canyon. This required the negotiation of 30 miles of very rough canyon where there were no roads. An animal-drawn ambulance made the round trip in six hours and twenty minutes.

That night it was discovered that one cavalry regiment, through a misunderstanding, had returned its contact agents to the collecting troop before entering the mountains. Immediately on receiving this word two mounted agents were despatched. They left at 9:00 P. M. to contact that regiment and accomplished their mission before morning.

But it must not be thought that the medical squadron did not have contact until those agents joined their regiment. All the time the troops were in the mountains main reliance was placed on contact by radio, authorized by the Division Commander. Most of the calls for ambulances came in that way, thus saving half the time and allowing unit surgeons to retain their contact agents for emergency.

The troops were in the mountains three days, penetrating to a depth of 25 miles. During this time twelve cases were evacuated to hospital, and twice as many more received treatment and were held temporarily at the Collecting Station. Excellent opportunities were afforded to try out all methods of evacuation.

During this same period the veterinary troop evacuated nine animals. All were led back to the Veterinary Collecting Station at Ditch Camp, where they received treatment and rest. Those requiring evacuation was sent out in the veterinary motor ambulance. It was immediately seen that this vehicle with a capacity of one animal was inadequate to clear the Veterinary Collecting Station if it had to go the 72 miles back to Fort Bliss. Arrangements were made to use the ambulance between Ditch Camp and Orogrande

and portée trucks of the Division Train for the rest of the distance.

While the mountain fighting lasted the medical squadron faced a very difficult situation. However, it demonstrated that a peace strength squadron, with all four troops active, can properly treat and evacuate the casualties from a peace strength cavalry division. The addition of a hospital troop would have allowed the establishment of a hospital station at Orogrande and thus shortened the round-trip ambulance route by over 100 miles.

On the third day the tactical situation changed. The entire division, including the regiment which had constituted the enemy's covering force, was concentrated at Ditch Camp. It then withdrew under cover of darkness to Orogrande.

To handle this withdrawal, as many elements of the medical squadron were attached to the cavalry and artillery as they were likely to need. The squadron, less these detachments, marched after the field trains and ahead of the main body. This arrangement allowed unit surgeons to carry with them all casualties resulting from the rear guard action. If their attached animal-drawn ambulances became filled, a mounted contact agent could double the column and request that another ambulance be left beside the road to join the regiment when it arrived at that point.

On arrival at Orogrande the division occupied a defense position opposing an advancing hostile infantry force, which had been concentrating while we were in the mountains. The division occupied three successive positions.

For this phase, simulated casualties with various types of wounds were designated. All elements of a complete evacuation and treatment system were represented. Regimental surgeons reported by contact agents their locations and subsequent moves of their aid stations. Slightly wounded rode their own mounts or walked to a Collecting Station behind the threatened flank or a Collecting Point behind the other flank. Litter cases were brought back in the cart or by pack litter. Collecting stations were evacuated by an animal-drawn and a motor ambulance shuttle to an imaginary hospital.

Veterinary casualties were also designated. They were led back to contact agents and treated in the Veterinary Collecting Station, whence they were evacuated by lead line, veterinary motor ambulance and portée trucks.

This being a defense situation with the cavalry operating mainly dismounted, distances were shortened and an opportunity afforded to inspect the entire medical service. The observers from other arms and services showed considerable interest in the work of the Medical Department. In fact several became temporary casualties in order to experience rides in the litter cart and on pack litters.

This phase terminated the maneuvers and the division marched back to Fort Bliss under peace conditions.

Conclusion

We have discussed medical service with mounted troops with many officers, both medical and of the mounted services, particularly cavalry. The general opinion expressed is that the cavalry casualty can not expect the same promptness as the infantry casualty, due to the nature of cavalry service. We can subscribe to this view but very partially—we believe that the difficulties exist but that, under modern conditions, they are by no means insurmountable, provided that we can make the necessary *special preparations* to meet them. We wish to particularly call attention to the value of *pack horses* for carrying medical supplies. With pack horses, sufficient supplies can always be *with the troops*. These horses can go anywhere the trooper can go, and cavalry commanders will permit them to do so. No wheeled vehicle can do this or is permitted to do it. We must move our men and supplies by the same means the cavalry uses—i. e. riding horses, pack horses and spring wagons. By using a spring wagon drawn by *four horses* to carry the aid station and dispensary equipment this materiel will always be close up.

Spring wagons require a reduced load, but we have selected a load of about 800 pounds in weight which seems ample for a peace strength cavalry regiment when supplemented by two pack loads.

For war, simply add a wagon per squadron.

With the Phillips pack saddle no difficulty is experienced in training medical soldiers to transport loads on pack horses.

Collection and Evacuation—This, like regimental service, presents difficulties. We believe, however, that a medical squadron can be so organized, equipped and trained that the job can be well done. Such a squadron should have among other things:

1. No transportation slower than a spring wagon drawn by 4 horses (except in its field train).
2. A light type of motor ambulance.
3. In the collecting troop, the means for transporting patients over every kind of ground over which cavalry can operate.
4. Radio or radio telephone communication so arranged that unit surgeons can promptly give full details of all casualties left behind to the squadron.
5. Mounted contact agents from the collecting troop in sufficient numbers. These would bring out many casualties on the patients' own mounts.
6. Airplane ambulances for seriously wounded or sick, and other emergencies.
7. Carefully prepared training regulations, equipment tables, etc. based on cavalry practice. We can move as fast and far as cavalry does, give medical service during combat, spot the casualties and evacuate them if we provide personnel and equipment suited for fast work, have enough of both and time to train them.

An attempt to work out the details suggested above is being made in the First Cavalry Division.



Sgt. Smith and his dog "Boogie" almost stole the show as an intermission fill-in-.

Before the show we found that the cavalry is just as snappy on foot as the next mans outfit

Up and through the flaming hoop. Those cow-boys were on to all the tricks known.

The artillery and machine guns gave us some real dope on their part in actual warfare-

The officer jumpers gave a beautiful exhibition of horsemanship-

The busiest group of non-performers were the M.P.s -!

The boys who rode the caissons brought back war days-

Doyle Webb

The First Reconnaissance Regiment

By Major Albert H. Stackpole, 104th Cavalry, Pennsylvania National Guard

BEFORE going into an explanation and discussion of what I have called, for want of a better name, the "First Reconnaissance Regiment" let me disavow any idea of attempting to present something bizarre merely for the sake of its revolutionary irregularity. What I have to offer I offer with no apologies, for it is my belief that the developments in the warfare of today make my suggested organization not only a possibility but, in character at least, an essential to the advancing army of the future.

In brief, this is the organization of the First Reconnaissance Regiment, United States Army:

One squadron of cavalry, plus a machine gun troop.

One squadron of armored cars.

One observation squadron, Air Corps.

If at first glance this appears to be a hodge-podge of men and equipment, bear with me until I have developed my thought. It is granted by students of the military profession that the sweeping advance of an army must be screened, covered, protected by whatever troops are best equipped for that purpose. In the older days it was the cavalry, but the days of the massed charge, the thunder of hundreds of hoofs as squadrons galloped in shock action, is, I fear, something for the movies alone.

What have we in its place? Some say the attack or observation plane for long distance reconnaissance; others claim the armored car as the sine qua non of a reconnoitering force. I contend that both, with a complement of cavalry line troops, presents a possible answer.

Granted that airplanes can travel far and fast, see much, without excessive fatigue. True, but what of the heavy banks of fog that hover in every country; the driving sheets of rain or blankets of wet snow befogging the most daring of pilots and observers in their effort to peer into enemy territory?

Granted that armored cars can speed rapidly along highways, and without committing themselves to the development of an action, inflict considerable damage and return to the commander of troops with information. True, but what of the road barriers, the impassable routes to be found in some counties, the inability of the armored car to leave the road and proceed 'cross country or through dense woods?

Granted that cavalry of the line can travel over the most difficult terrain to be found anywhere in any kind of weather, day or night, subsisting on the country and pushing on until horseflesh will stand no more. True, but what of the extremely limited area, in terms of miles, to be covered by these mounted men; what of the comparative weakness of their fire-power?

In the three foregoing paragraphs I have endeavored to sum up, quite generally, the merits and demerits of

the three squadrons composing my mythical regiment. But in summing them up, I call to your attention the fact that what one squadron lacks, another supplies; where the weather stops one squadron another leaps forward to fill the gap. And there, I believe, is the strength of the reconnaissance regiment.

Let us assume that this regiment is pushed forward as the advance guard, the reconnoitering force, of a larger body. In his hands the commanding officer holds the reins of three powerful steeds; his air corps squadron for distant and rapid reconnaissance, his armored car squadron for quick sweeping of the roads ahead of him, and his cavalry squadron for a searching of the country where lack of roads or soupy weather minimize the activity of the other two.

Liaison impossible with three such groups under one commander? Not at all! With the development of short-wave radio and its continued improvement there is no reason why all elements should fail to be in communication with their commander and with each other at all times.

For this purpose, in the case of the cavalry troops, a highly mobile crosscountry vehicle of the Christy caterpillar tractor type, equipped with the best short-wave radio equipment, could move with the organization to which it was attached. A similar command vehicle would stay with the armored car squadron commander, whose radio equipped machines would keep in touch with their leader's peripatetic P. C. The radio of the observation squadron, of course, is already highly developed in commercial aviation, as well as in the Army Air Corps.

Difficulties of supply? Surely, but not insurmountable. The field train, attached, or an integral part of the regiment, would be composed largely of pneumatic-tired trucks of large cargo capacity, to be used for the transportation of gasoline, of oil, of spare parts, of clothing, arms, and equipment, of forage, or of *men and horses*, as the situation demanded. Again the tractor mount of the type used either on the roads or in cross-country travel, could be put into service as a supplementary carrier.

Colonel (Cavalry)		
Lieut.-Col. (Air Corps)		Adjutant (Cavalry)
		Intelligence (Cavalry or Air Corps)
		Plans and Training (Cavalry)
Major (Air Corps)	Major (Cavalry)	Major (Cavalry)
Observation Squad.	Armored Car Squadron	Line Squad. with MG Tr. attached

The above, I believe, might be a working regimental organization.

This, of course, with the usual complement of medical department officers and men, distributed as necessary with each squadron, a supply officer trained with motor transport troops, ordnance repair men, etc.



NOTES FROM THE CHIEF OF CAVALRY

Goodrich Trophy Training Test, 1931

TROOP F, 7th Cavalry, Captain Donald A. Young, commanding, has been declared the winner of the 1931 Goodrich Trophy Training Test. The next competitors were:

2nd: Troop E, 8th Cavalry, Captain Harvey N. Christman

3rd: Troop F, 6th Cavalry, Captain Thomas W. Herren

4th: Troop B, 12th Cavalry, Captain Clifford A. Eastwood

The other troops competing were:

Troop B, 1st Cavalry, Captain Byron E. Shirley

Troop B, 2nd Cavalry, Captain Garnett H. Wilson

Troop F, 3rd Cavalry, Captain Hugh J. Fitz Gerald

Troop A, 3rd Cavalry, Captain Randolph Russell

Troop A, 4th Cavalry, Captain Hans E. Kloepper

Troop F, 5th Cavalry, Captain Olin C. Newell

Troop F, 11th Cavalry, Captain Charles G. Hutchinson

Troop E, 12th Cavalry, Captain Henry M. Shoemaker

Troop B, 13th Cavalry, Captain Harry H. Baird

Troop F, 14th Cavalry, Captain Glenn S. Finley

Troop A, 14th Cavalry, Captain Thomas G. Hanson

The Goodrich Trophy is a statuette of a cavalry trooper in action; the sculptor was Mr. A. Phimister Proctor. The donor is Lieutenant Colonel L. E. Goodrich, Field Artillery Reserve.

The Goodrich Trophy Training Test is held annually at all cavalry stations where a squadron or more of Cavalry is stationed. Each regiment or detached squadron enters one troop of cavalry in the contest. The first competition for the trophy was held in 1926.

The test is designed to require the troops competing to:

(a) Demonstrate their marching ability by completing a fifty (50) mile march in two stages within twenty-four (24) hours. Part of this march to be accomplished during the hours of darkness.

(b) Demonstrate their field training by making camp, establishing an outpost, and by breaking camp during the night with but little warning.

(c) Demonstrate their combat training by the employment of the troop in a combined action, in which one element acts dismounted by simulated fire action, one element (one platoon) employs the pistol, and a third element (one platoon) attacks with the saber alone. Silhouette targets and saberheads to be used as the objectives of those attacks.

Each cavalry commander in connection with this test appointed a board of three cavalry officers of suitable experience, preferably graduates of the Cavalry School, one of whom might be himself.

The boards prepared the prescribed problems in accordance with detailed instructions from the Chief of Cavalry.

The board, accompanied by a veterinarian, made an examination within twenty-four hours preceding the commencement of the March Phase of all public horses of the troop and of all private mounts pertaining to officers of the troop for which they drew forage. Penalty was assessed for each horse not standing the test. A similar examination was made on the day following the conclusion of the test of all animals which had participated in the test.

1931 Cavalry Rifle Platoon Competition

THIS competition was won by a composite platoon from Troop B, 8th Cavalry, 2d Lieutenant James O. Curtis, commanding.

Platoon scores.

1. 8th Cavalry—1st Squadron	19015.5
2. 8th Cavalry—2d Squadron	18707.
3. 26th Cavalry (PS)—1st Squadron	18171.
4. 26th Cavalry—2d Squadron	18164.
5. 12th Cavalry—1st Squadron	18112.5
6. 5th Cavalry—1st Squadron	17828.5
7. 5th Cavalry—2d Squadron	17803.
8. 1st Cavalry—1st Squadron	17764.5
9. 3d Cavalry—1st Squadron	17440.5
10. 14th Cavalry—1st Squadron	17414.
11. 12th Cavalry—2d Squadron	17383.
12. 7th Cavalry—1st Squadron	17229.5
13. 11th Cavalry—2d Squadron	17087.5
14. 4th Cavalry—2d Squadron	17073.
15. 1st Cavalry—2d Squadron	16825.5
16. 11th Cavalry—1st Squadron	16352.

Note 1—No entries submitted by the 3d and 6th Cavalry Regiments.

Note 2—The 2d, 13th Cavalry Regiments, and the 2d Squadron, 14th Cavalry, Fort Des Moines, Iowa, having participated in the Cavalry Leadership Test for Small Units, were ineligible to compete in the 1931 Cavalry Rifle Platoon Competition.

The Cavalry Rifle Platoon Competition is designed for those cavalry regiments and detached squadrons which are not afforded an opportunity to compete in the 1931 Leadership Test for Small Cavalry Units. Each rifle troop of such units is eligible to place in the competition a composite platoon selected by the troop commander. The selection is based solely upon individual aggregate scores made in record practice in rifle, pistol and saber during the calendar year. A composite platoon consists of one lieutenant, two sergeants, three corporals and twenty-two privates first-class and privates.

The prize is a cash sum of \$270.00 to be equally divided among the enlisted members of the platoon, and the platoon commander receives a trophy suitably engraved.

The Foreign Military Press

Reviewed by Major Alexander L. P. Johnson, Infantry

BOLIVIA—*Revista Militar*—November-December, 1931.

"The Military qualities of General Juan Vicente Gomez, Commander in Chief of Venezuela," by General Eleazar Lopez Contreras.

General Juan Vicente Gomez, President of the United States of Venezuela, is one of the outstanding figures of Latin America today. Successful as a soldier and leader of men on the field of battle in numerous campaigns, he is equally successful in preserving peace within the borders of the republic over which he has presided for more than a score of years. General Contreras presents an interesting character sketch of his commander in chief, who evidently possesses to a marked degree the rare gift of commanding not only implicit obedience, but also the loyalty and the devoted affection of his subordinates.

COLOMBIA—*Revista Militar del Ejército*—November-December, 1931.

Reorganization of the Colombian Army.

On November 1, 1931, a presidential decree went into effect for the reorganization of the Colombian Army. The military establishment under this decree consists of 477 officers, and 6,170 enlisted men, organized in five brigades and "Guard of Honor" battalion (Presidential Guards). The brigades, which replace the former divisional commands, consist of brigade headquarters and three infantry battalions of three rifle companies and one machine gun company of four heavy machine guns each. In addition each brigade contains a variable component of other arms. Thus, the 1st brigade has 1 group of cavalry, 1 group of artillery and 1 battalion of railway engineers. The 2d Brigade has, in addition to its infantry, 1 battalion of railway engineers, but neither artillery nor cavalry. The 3d Brigade includes 1 group of cavalry, 1 battery of field artillery and 1 company of railway engineers; the 4th Brigade contains 1 battalion of engineers, and the 5th Brigade, 1 troop of cavalry.

The cavalry group consists of headquarters and 2 troops. Similarly the field artillery group is composed of headquarters and 2 four-gun batteries. The Engineer and Railway Engineer battalion consists of headquarters and 2 companies, while the "Guard of Honor" battalion has a headquarters and 3 rifle companies.

The military establishment includes two river flotillas of two gunboats each.

The reorganization also affects the Ministry of War which, under the new plan, consists of five departments and four separate sections. The General Staff, designated as Department No. 2, consists of five sections: I. Operations and Communications; II. Territorial Service and Mobilization; III. Intelligence; IV. Trans-

portation and S. O. S.; V. Military History and Personnel.

The military school system comprises the School of Cadets, the School of Military Aviation and the War College (*Escuela Superior de Guerra*).

"The Definite Boundaries of Our Country," and "The Surface of Colombia," by Colonel Pedro Julio Dousdebos.

Two very carefully prepared, authoritative articles by the same writer. The first is a precise tracing of the geographical boundaries of the Republic of Colombia, whose total area covers 1,194,270 square kilometers. This study includes a succinct statement of the treaty agreements which definitely fixed the various portions of the frontier of the republic.

The second article is a description of the surface character, river and mountain systems of Colombia based upon the author's personal knowledge of the country, as well as upon the works of leading geographers.

AUSTRIA—*Oesterreichische Wehrzeitung*—May 1, 1931. "The Student Army of Soviet Russia."

Under the heading of "15 million student reservists for communism," the Soviet Commissar for Public Instruction sent to all schools a circular which contemplates the militarization of the entire soviet system of public instruction. Copies of this document came into possession of several members of the League of Nations shortly after Moscow has accepted Briand's invitation to a conference called for the discussion of his United States of Europe project, and soon after the Soviet Government had also announced its intention to participate in the deliberations of the Disarmament Conference. This circular issued by the Commissar places the entire school system into the military service, and virtually transforms the entire population into a nation in arms. An ukase issued shortly afterwards by the Commissariat for Defense regulates the methods of training for the different parts of the country. In the northern districts these instructions are of a purely defensive character, while in the south even boys are to be trained for offensive warfare. Although the Soviet authorities speak officially only of national defense, it is known that they have complete plans for offensive action against Roumania and Poland, for the conquest of the Danube delta, and the reconquest of Vilna, Brest-Litovsk and Warsaw. It is thought that Czecho-Slovakia will be totally helpless the moment the Red Armies occupy Poland and Roumania. The Soviet Government expects Germany to remain neutral, hence the Reich will form an effective barrier against western

aggression. The circular of the Commissariat of War counts upon popular support wherever the Red Armies might operate. Propaganda with that end in view has already been initiated.

Militärwissenschaftliche Mitteilungen—January-February, 1932.

The current number of this Austrian periodical is devoted entirely to the question of disarmament. In a series of very interesting and scholarly articles the various aspects of this important problem of the day are discussed and analyzed.

"The Calvary of Disarmament," by Colonel Maurice Wictorin.

It was the objective of every nation in every age to reduce its enemies to impotence. In ancient times defeated nations were either put to the sword or sold into slavery. As civilization progressed wars terminated with treaties of peace which imposed more or less stringent conditions upon the vanquished. The peace treaties which terminated the World War, although initiated upon the broad, humanitarian basis of Wilson's Fourteen Points, do not, in the author's opinion, differ materially from those of an earlier, more barbarous age. Even so, their enormity lies not so much in the conditions they impose, but rather in the hypocrisy that disarmed the vanquished nations under the pretext that it would initiate a general limitation of armaments among all nations.

The author then traces the history of disarmament during the post-war years, and he scrutinizes the activities of the preparatory commission and the League of Nations in this important field. These do not augur well, in the author's opinion, for a successful consummation of the program before the disarmament conference now in session.

"Potentiel de Guerre," by Colonel Emil Paschek.

This article analyzes Interrogatory V of the League of Nations questionnaire, dated December 12, 1925, which was intended to determine the potential war power of each nation. In the author's opinion, this factor is undeterminable. It is, therefore, an added reason which precludes the possibility of a universally applicable basis for world disarmament. The author believes that the war potential of any nation encompasses the entire state. He holds that mental preparedness and economic weapons may suffice for the conduct of a cruel war of annihilation, especially where there is in reserve a powerful military machine. He cites as an interesting example in point France's gold war of 1931 which featured financial campaigns not only against the defeated Central Powers but also against the British World Empire and the gigantic power of the United States.

BELGIUM—Bulletin Belge des Sciences Militaires—April, 1931.

Russia—In 1927, a "League for the Development of the Aerial and Chemical Arms" (Ossoaviachim) was

founded in Russia under the chairmanship of Rykov, president of the Council of Peoples' Commissars. This organization has, in time of peace, complete charge of all work connected with the anti-aircraft and anti-gas defense of the civilian population. The activities of this organization extend to every section of the country which is, for this purpose, divided into "rayons," each containing a number of organized "cells." These provide courses of instruction for the development of leaders for the anti-aircraft and anti-gas defense activities. Several rayons are united under the supervision of provincial directorates, and the latter are directly under the control of the Central Directorate which in turn is in constant touch with the party organization.

The great anti-aircraft defensive test and maneuver held at Kiev, in September, 1928, indicated the extent to which this important phase of preparedness had been developed in Russia. In addition to this active defense, there is in Russia also a remarkably well organized passive defense developed by the police, the fire departments, the Red Cross and Ossoaviachim. Since 1928 exercises of a general character have also been held in other Russian cities.

CZECHO-SLOVAKIA—Vojenské Rozhledy—May, 1931.

"Education of a Democratic Aristocracy in the United States."

The "West Point Guide Book" supplies the material for which the author saw fit to select such a fantastic title. He acquaints his readers with the organization and administration of the United States Military Academy. He discusses in detail the prescribed curriculum, the system of training, and discipline. The author apparently believes that the objective of cadet training at West Point is best characterized by the title he selected for his discussion.

GERMANY—De Re Bellica—No. 11, 1931.

The unfavorable economic situation of the world is having its adverse effect upon this excellent periodical published in the Spanish language by Gerhard Stallings, Berlin. The publishers announce, that unless subscription lists double, publication of this monthly magazine will have to be suspended. "De Re Bellica" is unique among military periodicals. Its contents are of the highest order and provide the reader with excellent material for self-instruction. Suspension of its publication will be a distinct loss to the military profession notably in Spanish speaking countries.

Militär-Wochenblatt—December 4, 1931.

"The Struggle for Manchuria."

Manchuria, with an area of about 924,000 square kilometers and a population of approximately 30 millions, has for a long time been the objective of Japanese foreign policy, which has consistently sought to establish Japan as the paramount power of the Far East. This policy may be defined somewhat along the principles of an Eastern Asiatic Monroe Doctrine. Japanese attempts to colonize in that vast territory have failed. After 25 years of occupation the Japanese population of Manchuria has not yet reached the million

mark. Climate and living conditions are unfavorable to the Japanese. Economically, however, Japan has been eminently successful in her Manchurian enter-

prise. The wealth in natural resources, the products of Manchuria's fertile soil have become an indispensable necessity of life for the Island Empire.

The position of Japan as a world power depends in a large measure upon the raw materials which she derives from Manchuria. It is, therefore, reasonable to conclude that Japan will never voluntarily withdraw from that Chinese province. Japan selected the most auspicious moment for the execution of her designs. Neither the League of Nations, nor any one of the interested powers are in a position to prevent Japan in that.

As to the actual military operations, it is interesting to note that the Japanese forces employed are relatively small but well disciplined. Morale is high. Provided with the most up-to-date equipment, and led with a remarkable singleness of purpose, this army is opposed by improvised, poorly equipped, incoherent masses. Military operations generally followed the railroad lines. The absence of suitable highways practically imposed such limitation upon the action. Occupation of important railway centers and establishment of railway guards were the principal features of this campaign. The Japanese employed their bombing squadrons extensively and effectively. Armored trains and light tanks also played an important part.

GREAT BRITAIN—*Journal of the Royal United Service Institution*, August, 1931.

"The Higher Study of War in the Army," by Major General Sir Charles W. Gwynn, K.C.B., C.M.G., D.S.O.

The author stresses the importance of proper training of staff officers. Their course of study should cover the widest field from the earliest stage of their career. On the other hand, theoretical training without subsequent practical experience is of little value. Hence, the number of officers receiving staff training must bear a definite relation to the number of peace-time staff appointments in which experience can be gained. While under such system some first-rate officers would miss

the chance of higher training, the author believes that to train more than can be assured of staff employment might well produce unsatisfactory consequences, and increase rather than decrease the number of the disappointed. In the author's opinion, senior officers do not form the best material for theoretical instruction. They will miss the assistance of subordinates in matters of detail, yet the solution of problems often turns upon the minutiae of detail. Again, the senior officer might become so involved in details which require expert subordinates that they will lose their sense of proportion and waste time. On the other hand, discussions and lectures without the study of concrete problems tend to a neglect of essential details and the formation of superficial conclusions. Since only a limited number of officers can receive the special training afforded by the Staff College, they must be treated as a leaven to work on the army. It imposes the duty upon commanders and staffs to spread the common doctrine throughout the army, not merely an optional doctrine, but one that affects every aspect of its employment.

The Journal of the Royal Artillery—October, 1931.
"The Mechanized Unit in the Field," by Lieut. Col. C. A. H. Montanaro, O.B.E., R.A.O.C.

During the past three years mechanization of the army has increased considerably. The corps artillery has been completely mechanized, brigades of cavalry partially so, and experimental infantry brigades are provided with mechanized first-line transport. Armored cars of the Royal Tank Corps and the cavalry have likewise made immense strides. For the maintenance of these vehicles a series of experimental mobile (or field) workshops have been tried out in practical exercises. The author undertakes to set out without technicalities some of the problems and the layout of the organization of the maintenance service for the first-line motor transport vehicles on active service. The author believes with respect to future developments that mechanization of an expeditionary force as to first-line and "A" echelon vehicles is limited 1, by the terrain over which the approach march is to be made, and 2, by the daily automatic supply services being able to keep pace with its movements, and its proper protection. From these assumptions the author concludes that only a definite percentage of any expeditionary force is likely to be entirely mechanized. Such mechanized force will be prepared as a mobile reserve in the hands of the C. in C. This percentage, in the author's opinion, will largely be determined by the maximum size of a self-contained mechanized force which can for a very limited time exist unsupported by a line of communications for the purpose of a special operation.

For purposes of his discussion the author makes certain assumptions as to the stage of mechanization reached by the army at the opening of a campaign. Accordingly the force presents the following picture:

1 Cav. div. (2 brigades with each regiment composed of 2 saber squadrons, but with mechanized M. G. squadrons, first line transport and scout cars. Each brig. with one mechanized art. btry. and 1 R. E. field sqn.)



5 (infantry) divisions (in 2 corps), each having one inf. brig. capable of being embussed and incorporated with the mechanized "support," i.e., mortar companies, mechanized and M. G. Cos. and first-line transport.

Corps artillery, engineers, armored cars of the R. T. C. or cavalry for the use of either cav. or inf. divisions; all entirely mechanized.

Auxiliary and H. Q. services with transport all mechanized, and a reserve mobile force consisting of an armored car regiment; 2 cav. brigs. as above; mixed tank brig. consisting of H. Q. and signal section, 3 tank bns. comprising light, medium and close support tanks; 2 army field brigs. R. A.; a mechanized field co., R. E.; and protective and supply formations. The entire force capable of self-sustained action involving separation from the L. of C. for a mission up to a week's duration.

The author further assumes, that this expeditionary force will march 3-6 days and rest 1 day until it establishes contact with the enemy. Shortly after making contact the situation temporarily stabilizes. During this stabilization, which may last 3 weeks, mobile troops screen the force till the railhead can be moved up.

The author then pictures the resulting maintenance situation based upon authorized organization as laid down in F. S. R.

Unit mechanics with hand-tools and spares carried by the organization take care of all first-line supply and repair needs. They attempt none but running repairs; the extent of these depend largely upon the extent of supervision of experienced officers and N. C. O's. It emphasizes the necessity of training competent unit artificers to provide the reliefs for the wastage of war.

Second-line repairs consist of jobs requiring not more than 24 hours. They are carried out by divisional and corps workshops. These include two light aid detachments each, one of which is available for use of the mechanized infantry brigades. Divisional and corps workshops are set up in two echelons to provide continuous repair facilities. These echelons may be advanced by the "caterpillar" or "leap frog" system. The first seems to have the advantage of simplicity, of organization, the second appears better suited to assist rapidly advancing or retreating troops.

The third link in the repair chain is a stationary advanced ordnance workshop which takes care of repairs and overhauls too great to be handled by the mobile shops in the army areas.

The author summarizes the details which, in his opinion, should be put into administrative orders; guiding principles for locating workshops, and considerations of communications. The article concludes with three appendices: A. definitions; B. organization, time and space factors; and C. Diagram showing maintenance and repair installations in the field.

HUNGARY—*Magyar Katonai Szemle*,—August, 1931.

"Organization of the A. A. Defense of the Capital," by Capt. Joseph Bálint.

The constantly growing radius of action of airplanes

dictates the necessity of peace-time preparation and organization of an effective antiaircraft defense of the capital and other equally vital strategic centers of the country. The author makes an interesting comparison of the relative values for this purpose of the A. A. artillery and aviation.

The advantages of the A. A. artillery are:

1. *Instant readiness for action.* In contrast airplanes require 13-15 min. in daylight, and 26-28 min. at night, in addition to the time interval between alarm and take-off, to climb to a suitable attack altitude.

2. *Constant readiness for action.* Darkness and fog seriously interfere with pursuit aviation but do not affect the effectiveness of the A. A. artillery.

3. *Sustained power of action.* The number of daily flights of pursuit aviation is limited. This limit cannot be exceeded without rapid deterioration of personnel and materiel. It takes several thousands of rounds to wear out an A. A. gun. Besides, modern artillery equipment permits ready replacement of the worn-out liner.

4. *Constant observation.* Well organized A. A. artillery is prepared to transmit accurate data for effective fire against approaching hostile aircraft from established observation and listening posts 30-40 km. in advance of the gun positions. The air force depends upon the same source for its information.

5. *General view of the air situation.* Ground observation provides better means for estimating the air situation, hence A. A. artillery can render valuable assistance to pursuit aviation by indicating the location of hostile planes.

Aviation possesses the following advantages:

1. *Ability to obtain a decision.* A. A. artillery alone can seldom, if ever, compel an enemy to abandon his mission.

2. *Great mobility.* A. A. artillery is tied to the ground. Airplanes can pursue and strike hostile aviation beyond the range of the A. A. guns. Hence, while A. A. artillery is capable only of passive defense, aviation is capable of active defense.

The author advocates a barrage or belt of fire 20 km. wide and 6000 m. high to compel hostile aviation to run the gauntlet of the concentrated fire of 3-4 guns for every 12 km. of front. He emplaces his guns in batteries of threes forming an equilateral triangle, distance between guns about 4 km. The distance of the barrage from the city limits naturally depends upon the available materiel. Within this belt of fire the defensive mission passes to the air force. Ample maneuvering space must, therefore, be provided within the belt of fire. The center of gravity of the defensive plan depends upon the direction of the expected attack. Listening posts along an observation belt about 30 km. from the center of the defended zone, the author believes, will allow ample time for the alarm and preparation for action.

Smoke-screens are effective defensive agents. Airplanes as well as industrial smokestacks can be used for their release.

SOVIET RUSSIA.—*Voyna y Revolutcia*,—No. 7,— 1931.

"On Sovietization," by Petrov.

An interesting discussion of the intriguing problem of sovietization of territories "liberated" by the Red Armies in a war of the future, and the proper methods of establishing the dictatorship of the proletariat. It is the bolshevik version of the law of military occupation of hostile territory. The author differentiates with subtle perspicacity between highly and moderately capitalistic states, dependencies, colonial, semicolonial and backward countries. In the case of capitalistic states the author proposes complete sequestration of all large property holdings, organization of all productive activities along communistic lines, distribution of a limited amount of farm land among the peasantry with collectivization of agriculture. In colonies, the author advocates war on feudalism, liberation of subject nationalities. In all cases, he urges close cooperation between the Red Army and the masses of workers and peasants of the "liberated" territory.

SPAIN.—*La Guerra y Su Preparación*,—September-October, 1931.

"The German Cavalry in the Roumanian Campaign, 1916," by Lieut. Col. Beigbeder, Military Attaché of Spain in Berlin.

Recent writings of General Brandt, former Inspector General of Cavalry of the German Army, have renewed general interest in the problems pertaining to cavalry and its modernization. General Brandt incidentally believes that the cavalry has lost much of its former

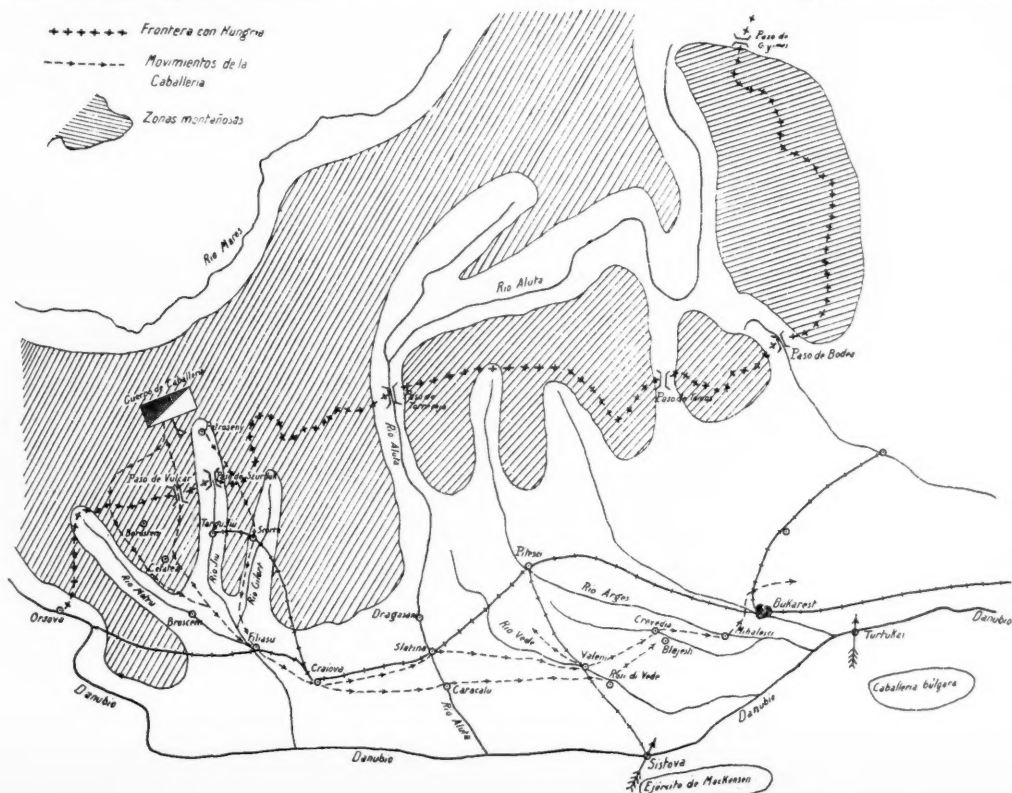
importance as an agent of reconnaissance, and that the essential mission of cavalry will henceforth consist of close cooperation with infantry. For this purpose cavalry will have to be employed in large masses.

The world war furnishes a most interesting, one might say classic example of the employment of cavalry which, to a certain extent, seems to confirm the views of General Brandt. The event occurred during the Roumanian campaign, in 1916.

The German efforts to invade the Roumanian lowlands by forcing the Carpathian passes of Gyimes, Bodza, Tömös and Vöröstorony (Torre Roja) failed. General Falkenhayn, in agreement with the Austro-Hungarian High Command, decided to launch his attack on his right flank in the vicinity of Vulcan Pass with the intention of executing a turning movement towards the southeast in the direction of Bucharest. The first attempt, executed in October, 1916, failed before the 6th and 7th Cavalry Divisions had an opportunity to act. Subsequently these divisions were organized as a cavalry corps under General von Schmettow.

The German offensive was launched on November 11th. During the first four days of the attack the Germans advanced slowly but steadily, occupying the heights south of Szurduk Pass on the 14th. The bulk of the cavalry corps remained in reserve north of the Carpathian crest with one regiment, the 4th Uhlans, detached in position near the pass named with reconnaissance and demolition missions.

On November 14th, the German High Command received information of a general retreat of the Rou-



manians beyond Targu-Jiu towards the south and southeast. The 4th Uhlans, observing the Roumanian retreat, anticipated a general pursuit, proceeded to Scorta in order to cut the railroad to Graiova. General Kuhne's corps, reinforced by one division which had just detrained at Petrozsény, was directed to advance on Dragosani. The cavalry corps was ordered to support this movement, covering Kuhne's right flank, and to envelop elements of the Roumanian army which may offer resistance to Kuhne's advance. The orders designated Filiasu as the cavalry objective. Subsequent events proved that the German orders for the pursuit were premature. They were actually based upon erroneous reports.

The cavalry corps crossed the Transylvanian Alps through Szurduk Pass and upon reaching Targu-Jiu encountered the Roumanians in a strong position along the heights between the rivers Jiu and Gilorta. The 6th Cavalry Division engaged in a stiff battle southeast of Targu-Jiu, but the Roumanians offered stubborn resistance. On the following day, while the battle still continued along the divide, the German cavalry, believing that it had enveloped the hostile left flank, advanced resolutely until it ran headlong into the Roumanian main line of resistance, north of Cetatea. Late in the afternoon, the entire cavalry corps found itself engaged in one of the hardest fought battles of the campaign. A severe snowstorm and the extremely difficult character of the terrain added to the hardships of the battle. On the left of the cavalry corps, the Bavarian 11th Division and the 4th Uhlans endeavored to contain a numerically superior hostile force.

The 6th Cavalry Division, upon being replaced by infantry, retired to Targu-Jiu.

On the following day, November 17th, the Austro-German forces renewed the battle with unabated vigor. The cavalry extended its enveloping movement farther to the west, while Kuhne's corps directed its attack against the Roumanian right. The 7th Cavalry Division attacked the Roumanian positions along the heights north of Cetatea but failed to gain ground. The 6th Cavalry Division, on the right of the 7th, advanced along the valley of the Motru, and closed with the enemy west of Cetatea. After a brief dismounted action it dislodged the Roumanians and promptly launched the pursuit. At the same time, the 41st Division made appreciable gains on the Roumanian right flank. Under this double strain the Roumanians decided to evacuate Cetatea. Farther to the east, the Bavarian 2d Division, reinforced by the 4th Uhlans, dislodged the enemy from his strong position along the Gilort ravine. The 6th Cavalry Division reached Broscani at sunset. Bad roads and Roumanian demolitions considerably retarded the advance of the cavalry.

On November 18th, the cavalry began its advance on Filiasu and Craiova. Reconnaissance detachments, well in advance, reached the valley of the Aluta south of Slatina while pioneers destroyed the Craiova-Slatina-Pitesc railroad line. These developments resulted in the complete isolation of Roumanian forces near Orsova. They attacked the German-Austrian forces in the rear on the 19th and 20th in an attempt to cut

their way through. It was necessary to detach a portion of the 7th Cavalry Division to cover the rear of the pursuing army.

A reconnaissance troop of the 2d Dragoons entered Craiova on November 21st, the advance guard arrived there on the 22d, and the main body of the corps on the following day. At the same time the cavalry secured the bridges at Caracul and Slatina. After crossing the Vede river, the cavalry corps continued the pursuit toward the northeast. On November 30th, it encountered a Roumanian force with artillery near Blejesti. Further advance was impossible until infantry reinforcements came up. On December 1st, we find Schmettow's cavalry corps beyond Crevedia. Here the situation changed completely. Mackensen's army had crossed the Danube at Sistova and was advancing northward seeking to effect a junction with the German Ninth Army. The Roumanians reinforced by Russians opposed this movement. There still was a gap of 40 km. between Mackensen's left and the right of the German Ninth Army. The Roumanians planned to attack and dispose of Mackensen separately. By some chance a copy of the Roumanian attack order fell into German hands and Field Marshal Mackensen, who had assumed command over all Austro-German forces operating in Roumania, promptly decided upon a simultaneous attack with all his forces on December 2nd. He assigned to the Cavalry Corps the mission of covering the interval which separated his two armies.

On December 2nd, the 7th Cavalry Division established two bridgeheads across the Arges, west of Bucharest. On the following day, the 6th Cavalry Division and the Bavarian 11th Division fought a victorious battle at Mihalesci. On December 4th, the Cavalry Corps received orders to move to the north, passing around Bucharest and to cut the railroad leading to the northeast. At the same time the cavalry was to effect a junction with the Bulgarian cavalry advancing from Turtukai with the mission to cut communications east of the Roumanian capital.

On December 6th, the 7th Cavalry Division, supported by infantry, took the Roumanian defenses northwest of Bucharest, and shortly afterwards the Austro-German forces entered the capital.

The author makes the following deductions:

1. The operations were initiated with the definite idea of employing cavalry.
2. The premature action of Schmettow's corps as a result of erroneous information indicates the difficulty of determining the precise moment for the exploitation of a victory. Frequently failure is due to the erroneous or premature decision of the commander in chief rather than to the cavalry employed.
3. During the pursuit, from November 18th to December 5th, the cavalry corps covered daily an average of 23 miles. Considering the size of the command this was indeed a remarkable performance. It must also be remembered that all rivers intersected the direction of march, and that on two days of the pursuit a part of the cavalry had to engage in rear guard actions against a Roumanian detachment cut off by these operations in the vicinity of Orsova.

SPORTS

THE 1st Cavalry Division at Fort Bliss held its first horse matinee of the season in Howze Stadium at Fort Bliss on Wednesday, March 23d. These matinees are held under the auspices of the El Paso-Fort Bliss-Polo-Horseshow-Association, the principal officers of which are:

Brig. Gen. W. C. Short	President and Director.
Major C. L. Clark,F. A.	Executive.
Major P. L. ThomasCav.,	Treasurer.
Lieutenant C. V. Bromley, Cav.,	Secretary
Lieutenant P. B. Sancomb, 7th Cav., ..	Grounds and Decorations.
Major Willis D. Crittenden-berger,	8th Cav., ..Entertainment.
Captain M. H. Ellis,Cav.,	Ringmaster.
Captain H. N. Christman, 8th Cav., ..	Paddock Master.

A Horse Matinee Trophy will be awarded at each matinee to the unit winning the greatest number of points during the matinee. This trophy will be suitably engraved and held by the winning unit until the next matinee. This trophy will be finally awarded for the season of 1932, at the 1932 1st Cavalry Division Horseshow to the unit winning the greatest number of matinees during the season.

Winners of the Matinee on March 23d were:

CLASS I. JUMPERS—ENLISTED MEN

Name of Rider	Place	Name of Horse
Private Horn82d F. A. ...1st	Galley
Sergeant Prueitt8th Cav. ...2nd	Rabbit
Private Tauser7th Cav. ...3rd	Goat
Corporal Carrigan8th Cav. ...4th	Bully

CLASS II. JUMPERS—OFFICERS

Name of Rider	Place	Name of Horse
Lieutenant Sancomb ..7th Cav. ...1st	Midnight
Lieutenant Doan8th Cav. ...2nd	Silver
Lieutenant Wing7th Cav. ...3rd	Crescent
Captain Rose8th Cav. ...4th	Husky

CLASS III. JUMPERS—LADIES

Name of Rider	Place	Name of Horse
Miss Roberson7th Cav. ...1st	Apology
Mrs. Creed8th Cav. ...2nd	Berk Boy
Mrs. Vance7th Cav. ...3rd	Chestnut
Mrs. Maloney8th Cav. ...4th	Masquerader

CLASS IV. NOVICE JUMPERS

Name of Rider	Place	Name of Horse
Lieutenant Croswell ..8th Cav. ...1st	Dan Patch
Sergeant Shrout7th Cav. ...2nd	Snake
Private HinkleSp. Trps. ...3rd	Yaqui Jim
Corporal Brown8th Cav. ...4th	Whiskers

In all jumper classes performance only counted. The 7th Cavalry won the Matinee Trophy with a total of 19 points. The 8th Cavalry was runner-up with a total of 17 points.

Sergeant Ambrose Shrout, 7th Cavalry, gave a fine exhibition immediately following class IV, on his newly trained horse "Happy Gay."

The children of the El Paso-Fort Bliss-Polo-Association riding class gave an exhibition at the close of the matinee.



The Olympic Games Equestrian Team of the United States Army in a workout at Ft. Rosecrans, Calif. The team is expected to be America's foremost contenders in the Prix des Nations event; the individual Dressage event and the "Three Day Event," the latter covering training tests, endurance tests with cross country and steeplechases and jumping test over obstacles.

Left to right in this triple jump are; Capt. Wm. T. Bradford, on "Suzanne." Lieut. Carl W. A. Raguse on "Sir Neal" and Lieut. Peter Hains on "Don R."

Polo Tournaments

May 28 to June 6—Boise, Idaho.
 May 31 to June 14—Maryland Polo Club.
 June 12 to July 31—Meadow Brook Club.
 June—Intercollegiates.
 July 2 to July 10—Fairfield Polo Club, Conn.
 July 2 to July 10—Broadmoor, Colo.
 July 3 to July 24—Rockaway Hunting Club.
 July 10 to Aug. 28—Point Judith, R. I.
 July 17 to July 24—Monmouth County.
 July 17 to July 31—Rumson Country Club.
 Aug. 1 to 15—Big Horn Polo Club, Wyo.
 Aug. 7 to 25—Myopia Hunt Club, Mass.
 Aug. 13 to 21—Broadmoor, Colo.
 Aug. 15 to Sept. 15—Oak Brook Polo Club.
 Aug. 21 to 27—Miami Valley, Ohio.
 Aug. 22 to 27—Norwood, N. J.
 Aug. 28 to Sept. 3—Fairfield, Conn.
 Aug. 28 to Sept. 11—Onwentsia Club, Ill.
 August—Smithtown, N. Y.
 Sept. 5 to 17—Bryn Mawr, Pa.
 Sept. 12—Twin Cities Polo Club, Minn.
 Sept. 15 to Oct. 1—Wichita, Kan.
 September—Open Championship, Meadow Brook Club, N. Y.
 September—Monty Waterbury Cup Tournament, Meadow Brook Club, N. Y.
 Oct. 1 to 15—Fort Oglethorpe, Ga.

PROFESSIONAL NOTES *and* DISCUSSION

The Sino-Japanese Conflict

By First Lieutenant O. L. Nelson, Infantry

THE basis of trouble in Manchuria is the considerable Japanese investment there. To properly safeguard the South Manchurian Railway, a prize of the Russo-Japanese War, Japan acquired a railway zone and an area at the sea terminal of the road at Dairen. Japan also then secured important mining and land rights and a concession to build a railroad from Mukden to the Korean border. Through the Japanese-owned railways flowed the trade of Manchuria.

Japan regards Manchuria as essential to her economic security. She depends upon that area for food, raw materials and an outlet for surplus population. To safeguard her billion dollar investment there, Japan secured from China by treaty the right to maintain 15,000 troops along the railway zone.

With the removal of restrictions early in the century some twenty-five million Chinese have settled in Manchuria, a movement that has been compared to the great westward trek in the United States. These Chinese settlers have had little liking for Japanese special privilege and for the colonization schemes of Japan for her Korean and Japanese subjects. Chang Hsueh-liang, after he moved to Peiping, antagonized the Japanese by breaking treaties, by surrounding Japanese railways with restraints and by ignoring Japanese rights in general. Local Chinese governments discriminated against Japanese, and uncontrolled Chinese soldiery obstructed trade.

With Manchuria by nationality and by political affiliation a part of China and by trade and by economic development a part of Japan, trouble was inevitable. In carrying out a local ordinance Chinese farmers sought to dispossess Koreans who had settled at Wanpaoshan near Changchun. Chinese farmers and police clashed with the Koreans, who were aided by Japanese special guards. On July 27th it was discovered that one Shintaro Nakamura, a captain in the Japanese army, had been executed by Manchurian troops. These instances and innumerable others set the stage for the action that followed.

On September 18th Japanese railway guards discovered Chinese troops from the Petayung barracks in the act of destroying a portion of the South Manchurian railway near Mukden. That act precipitated the Japanese military campaign.

On this date Chinese troops were scattered in large numbers throughout Manchuria. Some forty thousand distributed in large garrisons at Mukden, Taonan, and Chinchow owed allegiance to Chang Hsueh-liang. Chang Tso-liang, Chairman of Kirin province, con-

trolled some sixty thousand scattered in Kirin, Changchun, Harbin, and along the Chinese Eastern Railway from Harbin eastward to the Siberian border. Wan Fu-lin's troops in the province of Heilungkiang numbered some twenty thousand and were located in garrisons scattered along the Chinese Eastern Railway from Tsitsihar northwest to the Russian border.

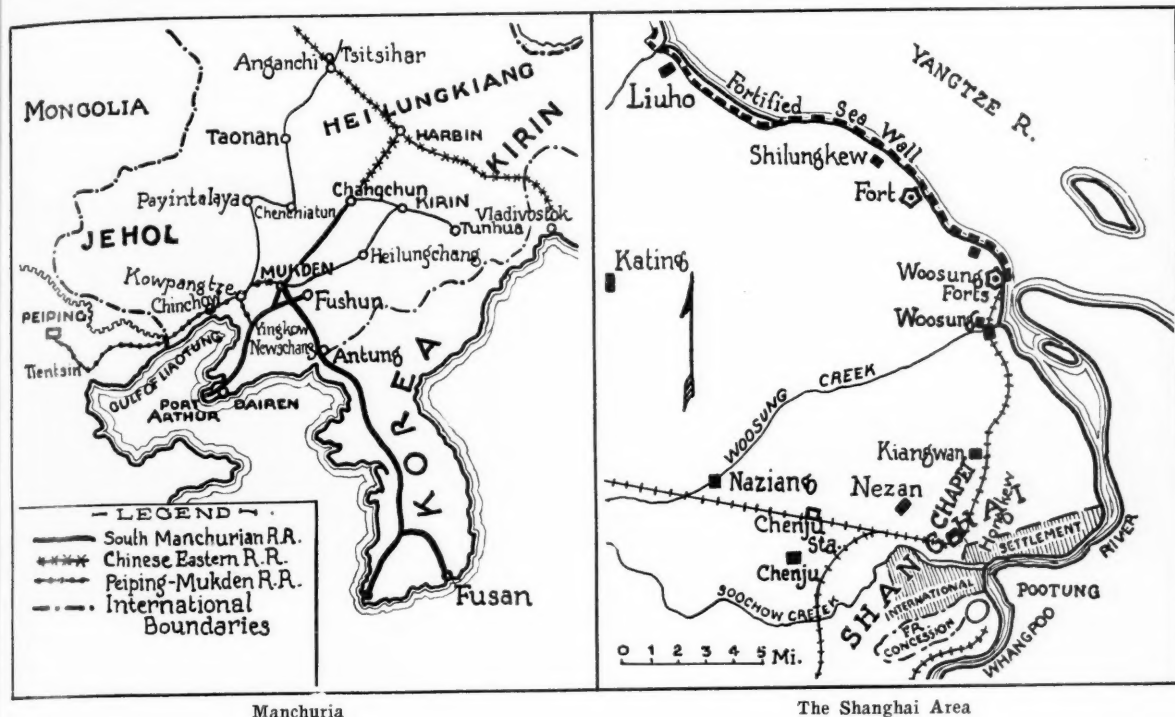
The Japanese forces consisted of some five thousand railway guards and some seven thousand troops of the 2nd Division scattered in small detachments along the South Manchurian Railway. In addition, some forty thousand reservists, available on call, reside in Manchuria. Press reports repeated the rumor that a number of these Japanese reservists were called to active duty.

Japanese troops immediately occupied Kirin, Changchun, Mukden, Newchwang, and Fushun and proclaimed martial law in the territory adjacent to the Railway Zone. The Commanding General moved his headquarters from Port Arthur to Mukden. Japanese troops in Korea received a warning to be prepared to move into Manchuria.

The only real fighting took place in the action on the railway near Mukden that initiated the occupation. Here some three hundred Chinese were killed. Japanese occupation met with little resistance as the Chinese forces melted away before the Japanese advance. Whether this was due to the Chinese soldier's indisposition to fight or due to telegraphic orders from Chang Hsueh-liang instructing them not to fight is difficult to say.

By September 24th Japanese troops had completed their occupation. At that time the Japanese government indicated a willingness to negotiate with the Chinese for a settlement of the difficulties. The Nanking government informed Japan that there could be no negotiations until Japanese troops were withdrawn. China appealed to the signatories of the Pact of Paris and invoked Article XI of the Covenant of the League of Nations. By this action Chinese diplomacy elevated the Manchurian trouble from the plane of a local conflict that could be settled by local negotiations between the conflicting parties to the realm of international politics wherein the Great Powers would play the leading rôles.

There was sporadic fighting in November along the Taonan-Anganchi-Tsitsihar Railway. On the 18th, forces of General Mah's were defeated north of the Nonni river and driven north of the Chinese Eastern Railway.



Manchuria

The Shanghai Area

Despite Japanese occupation of all strategic points in Manchuria, the military situation was not entirely satisfactory to General Honjo, the Japanese commander. Chinese forces in and around Chinchow exceeded in number the Japanese forces scattered throughout Manchuria. Bandits and Chinese soldiery terrorized a large area southwest of Mukden and in Harbin disturbances between rival Chinese factions created great disorder. During December Japanese troops engaged in "mopping up" expeditions using armored cars very successfully. Chinchow and Harbin were occupied. By January 5th no Chinese forces remained north of the Great Wall. The occupation of Harbin and Tsitsihar brought Japanese forces into the zone of influence of Soviet Russia, joint owner with China of the Chinese Eastern Railway, and evoked a mild protest from Soviet Russia.

Japanese military success in Manchuria carried with it disastrous economic consequences for the victor.

The effects of the boycott produced such a strong feeling of resentment that its translation into action was inevitable. The mauling of five Japanese monks in Chapei on January 19th by a Chinese mob and the printing by a Shanghai Chinese newspaper of a scurrilous attack on the Japanese Imperial House precipitated the action.

On the night of January 28-29 Admiral Shiozawa advanced upon the Hongkew-Chapei boundary with some three thousand men after announcing his intentions and expressing the hope that the Chinese would retire. Knowing that experienced Cantonese troops at odds with the Chinese government's policy of nonresistance were entrenched in Chapei, the Japanese commander chose a poor place to make a demon-

stration of force. Sniping operations and guerrilla warfare were admirably adapted to a defense of this area and were resorted to very effectively. Surprised that the Chinese had not withdrawn and chagrined at their inability to advance, the Japanese reduced Chapei to ruins.

On February 3rd Japanese gunboats began shelling the Woosung Forts. Skirmishes occurred all along a general line extending from the forts to Shanghai. After several days of shelling the Woosung Forts the Japanese landed some twenty-five hundred soldiers and marines just south of the mouth of the Woosung Creek and attempted to take the forts. Despite heavy artillery support from naval guns the Japanese were unable to advance. On February 13th the Japanese advanced under a smoke screen and succeeded in getting a thousand men across the creek on a pontoon bridge. Chinese machine-gun fire made the position untenable, and the Japanese retreated.

Abandoning the idea of defeating the Chinese with a small force the Japanese began to prepare for extensive operations. Re-enforcements poured in from Japan until by February 20th the Japanese forces totaled around twenty-five thousand.

General Ueda who had succeeded to the command of the Japanese forces undertook an ambitious program. Along the Hongkew-Chapei boundary the Japanese feinted to attract as many Chinese troops to that locality as possible. Simultaneously, naval gunfire preoccupied the defenders of the Woosung Forts. Between these two points were concentrated the Japanese re-enforcements with the mission of attacking the Chinese center at Kiangwan and of breaking through the Chinese defenses. After dividing the

Chinese lines a small part of the forces were to envelop the Woosung Forts while the main body outflanked the Chinese and squeezed them southward against the settlement.

Though the plan was excellent the Japanese again failed to correctly estimate the Chinese strength. After forty-eight hours of fighting the Chinese still held Kiangwan. Then the Chinese launched a counter-attack at Hongkew. That plus the sniping operations in areas in which gains had been made proved to be so effective that the Japanese abandoned the attack and awaited re-enforcements.

The valiant defense of the Chinese surprised everyone. The 19th Route Army, composed of trained Cantonese troops, bore the brunt of the attack. Well trained in trench warfare by the Russian General Galen and by the German Colonel Bauer, these South-China troops understood trench construction and the correct location of barbed wire entanglements and machine guns. Remaining under cover during the artillery preparation they manned the defensive positions in time to meet Japanese attacks with effective machine gun fire.

By March 1st the Japanese forces had increased to about fifty thousand and the offensive was resumed.

As a preliminary to a general attack, Kiangwan had been attacked and captured on February 28th. On March 1st the Japanese attacked the entire Chinese line from Chapei to Woosung Forts. At the same time Japanese troops were landed at Liuho, twenty miles northwest of Shanghai on the Yangtse river. With their left flank thus menaced and with fresh Japanese troops pushing the frontal attack the Chinese retreated hurriedly, though in fairly good order. As soon as the Chinese had withdrawn west of the line Liuho-Kating-Naziang, the Japanese attack halted. The Chinese were now outside of the twenty kilometer zone specified in the original Japanese ultimatum.

Apparently, military operations terminated with the Chinese retreat from Shanghai. Settlement of the difficulties and the question of withdrawing troops present problems yet to be solved.

Meanwhile, the Chinese internal situation grows more complicated. Chiang Kai-shek's failure to send re-enforcements to the Cantonese 19th Route Army promises to make future co-operation between the two groups even more difficult than in the past. Not even a common hatred for Japan and the need for common defence seem to produce a united China.

The Formation of "Model" Regiments of Cavalry for the Mexican Army¹

A project suggested to the Secretary of War and Marine by Lt. Col. Natalio Garduno Nava

I HAVE the honor of submitting to the Secretary of War, to aid him in his search for means of improving our institutions, the following suggestion, namely, the formation among the regiments which will be maintained as our permanent cavalry arm, of one or more "model" corps. These corps can be formed from the best elements of the regiments which are to be disbanded in accordance with the government's program of economies, and should be formed of enthusiastic horsemen—not merely men who may happen to possess some slight knowledge of riding and equitation, but men who are thoroughly and accurately familiar with horses and all branches of horsemanship and horsemastership.

If we take into consideration that one of the most important qualities of the modern cavalryman, or dragoon, is his horsemanship, and if we agree that the dragoon should be a young, healthy, vigorous man, such as are nearly all of our country people (those whom we call *De á Caballo*), we are forced to the conclusion that a corps formed as suggested will inevitably be of superlative efficiency in all its services, and especially in the field in campaign.

One of the notable components of the old Russian Army was found in the Cossacks. Agile, intrepid, excellent riders, they possessed sufficient practical knowledge of horsemastership to bring out and maintain the best qualities of their mounts in campaign, par-

ticularly in the services of exploration and reconnaissance.

The Uhlans of the German Army were composed of individuals specially selected for size and character, a combination which inspired the greatest of respect in their enemies. The basis of their training was a careful and conscientious education in all branches of horsemanship.

One of the glories of our own military history is to be found in the exploits of our valiant *Chinacos*, who, led by Colonel Nicolas Romero, gained fame with lariat, machete and excellent horsemanship. And there linger among us to this day memories of the old-time corps of *Rurales*, who pleased the eye not only with their showy uniforms but also with their riding and their complete mastery over their mounts. The exploits which most attracted the attention of General Francisco Villa were, beyond doubt, their rapid movements in campaign, and these were made possible by the quality of the troopers, the men *De á Caballo*.

We cannot doubt for an instant that one of the most potent factors in the overthrow of the old regime, was the presence in the revolutionary ranks of thousands of farmer-riders.

Nor should we fail to consider the geography of our country. It covers a tremendous area, it is mountainous and broken, it lacks hard-surfaced roads; hence, the most satisfactory and efficient means of locomotion is still to be found on the back of a four-footed animal. And, as I have already pointed out, it is apparent that the cavalry, and no other arm, determined and assured

¹ Translated by First Lieutenant C. C. Clendenen, 12th Cavalry, from "Revista del Ejercito y de la Marina" (Mexico), March, 1931.

the triumph of the revolution. Thus, the cavalry must be given adequate attention, even to the point of favoritism.

It would be possible to advance many other arguments showing the advantages which would accrue to our country, the proud possessor of such a cavalry, but many such arguments would enroach upon the sphere proper to higher authority, so I will pass to a brief discussion of the organization of such a force.

The formation of these "model" regiments need add no expense whatever to the burden now borne by the nation if they are included among the regiments which are to be maintained permanently to form the cavalry arm. Composed of personnel satisfying the requirements and standards which I will mention in more detail, they would serve as a model for all other regiments in their efforts to attain a like standard of excellence.

The commanding officers and higher officers of these "model" units should be selected from among those who unite the qualities of being good organizers, able horsemen, expert judges of all matters pertaining to horsemanship, and lovers of their arm. The junior field officers and troop officers should be selected by the Department, each for his ability to guide and instruct his subordinates in horsemanship and horsemastership. The personnel of the troops should be selected by a commission of experts, after an examination such as I have outlined below.

Practical examination:

1. Selection of a horse.

2. Overcoming properly the defenses and vices of the horse.
3. Knowing the kind of a bit suitable for the horse assigned.
4. Bridling and unbridling.
5. Saddling and unsaddling.
6. Mounting and putting the horse in motion.
7. Mounting bareback, mounting the saddle without stirrups, and moving at the walk, trot and gallop.

Theoretical examination:

1. Explaining the various steps of the practical examination, and explaining the rules and methods which any of the applicants may have followed.
2. A knowledge of the elementary medicaments for treating a horse in case of emergency.
3. The qualities of being fond of horses and considerate toward them.

One of these "model" regiments, if attached to the Cavalry School from its opening, would be a great benefit to the students, for their progress will be greatly facilitated if the example set before them is that of recognized experts. The combination of practice with theory will assure that the students of such a school will be incomparable cavalymen.

From the personnel of these "model" regiments could be selected, also, the trainers for the remounts produced by the breeding establishments which the War Department has founded with such success and from which trained horses are to be produced for service in our ranks.

Reconnaissance Groups in the French Maneuvers

Colonel J. Pichon, "Revue de Cavalerie," January-February, 1932 (Digest)

NOTE. This digest of an article appearing in the "Revue de Cavalerie," Jan.-Feb., 1932, is published as giving food for thought to officers who must command in the future our reconnaissance groups, either horse or mechanized.

CHANCE gave me the opportunity to observe, during the maneuvers, the operations of a variety of modern reconnaissance groups.

Two general characteristics were particularly striking; first, the diabolical *entrain* of these units; the uncertainty and almost the fear of those who saw these rapid, powerful adversaries appear suddenly at a hundred different points of the battlefield and did not know how to guard against them nor get rid of them. This was true not only of the infantryman, cavalryman or artilleryman fearing the armored automobile appearing at 20 km. an hour, but an armored car meeting another unexpectedly usually turned tail. So would the other one.

Elements of unequal rapidity were associated; horses, cyclists, armored cars and sidecars armed with machine rifles and making easily 50 km. an hour.

The use of these engines of unequal rapidity is diverse. The horse cavalry filters through everywhere. The cyclists, once dismounted, hold with the character-

istic solidity of infantry. The armored cars go fast on the road, slowly in the fields when they can risk themselves there, are powerful and well enough protected, but see badly. The sidecars go extremely fast without any protection and see of the enemy only that which is very apparent. In short, the most rapid and powerful tools of fire are the most blind,—there is no remedy for it.

Attempts were made to solve the difficulty by dissociating the different elements: horse elements on a flank across the fields; the cyclist squadron, used in the defensive on the position to be covered, incorporated in the battalion which occupied it. Two of the armored cars, with a platoon of cavalry, on the principal road to be covered.

There was no unity of command. The main body of the horse squadron made war on its own account. The armored cars on the main road acted as alarm bell, nothing more—it is not a force. As for the cyclist company, it was just one more small company for the major commanding the defensive position.

Another case: about ten o'clock a reconnaissance group, having forced a passage in an enemy outpost position, breaks up. The two horse squadrons are sent in one direction; all the motorized elements set off on another axis of operations, making an angle of

more than 45 degrees with the other. Towards noon, the horse elements are in a regular wasp's nest, and the motorized elements are too far off to give any help.

Same day: an armored car and some machine rifles hold a solid strong point. *But there is not a horse-man there.* The officer who commanded this strong point could see very well to his front, badly on one of his flanks. He kept sending a motorcycle out on this uneasy flank to make sure he was not being turned, for he needed time to put his materiel back on wheels and to withdraw. He finally fell back much too soon. He lacked a few troopers, and nothing could take their place.

The different elements are complementary, but they may be temporarily separated. Thus, in a race for a strong point, it is normal to send the most rapid in spite of the risks of their being alone, and it is evident that it is useless to give machine-rifles motors capable of going 50 km. an hour if they have to drag along behind mounted men. On the other hand, when combat is likely, concentration is necessary.

A Few Maneuver Examples

The motorized arms are of great efficacy when they know the situation and are used without exposing themselves; that is to say, against an enemy whom they see at a distance where their fire is effective and they are not in danger. Example: they arrive at a crest or at the edge of a wood and surprise the enemy on the march in the open.

On the other hand, the simplest traps are of almost certain efficacy and experience has shown that an armored car or tank may be taken, if isolated, by resolute men.

Traps are laid in advance. All these engines, used to seize strong points quickly, come by the road, and have for objectives bridges and villages—where they are going almost inevitably to have street fights.

Foot troops surprised by an armored car run no danger if there is cover handy—orchards, hedges, houses;—and, if there is not, run a danger much greater by retiring in the open where the armored car, more rapid, will shoot them at will, than by accepting combat; an armored car in many cases destroys three enemy ones if it knows its business; and armored cars which enter a defile confidently because the enemy is abandoning it are lost—if that abandonment is a trap; and it probably is.

Case No. 1: A street bordered by houses. Opposing armored cars perceive each other and shoot at each other. One flees towards B while A pursues. (Sketch No. 1)

But suppose this fleeing armored car turns towards B' and disappears. In no case can A pursue. B' merely waits under perfect cover at the corner of the house and fires point blank at A. A is totally disarmed if it has no troopers nor sidecars near. To pursue blindly is suicide.

Case No. 2: An important village; schematically a straight street crossing three water courses, hence three bridges, and turning towards the east at the northern exit of the village. (Sketch No. 2)

Three armored cars and some sidecars enter the

village from the north; they are already at bridge 3 when they find themselves face to face with three enemy armored cars entering from the south, and also followed by sidecars.

Confused cannonade, rapid withdrawal of the northern party.

Why? Mistaken maneuver. It was a case for shooting the bolt behind bridge 3 in the manner described in the preceding example. No armored car of the southern party could have passed.

However, the elements which withdrew disposed themselves as shown in Sketch No. 2; the machine rifles of the sidecars AA' opposite the northern exit. The armored cars at B on the road, the first ready to fire on bridge No. 1.

When the southern armored cars arrive at bridge No. 1 they receive fire of machine rifles which disturbs them only a little but, once on the bridge, four 37 mm shots come from less than 200 meters. The check is perfect,—no southern armored car can fire towards B without exposing itself, consequently without being destroyed.

This may last indefinitely. B is nearly invisible. The southern armored cars have no one to go and see if B is still in place; they know it only when they try to come out.

Finally the sidecars find near C an emplacement commanding B. An armored car sent there surprises with 37 fire and obliges the opponents to retire.

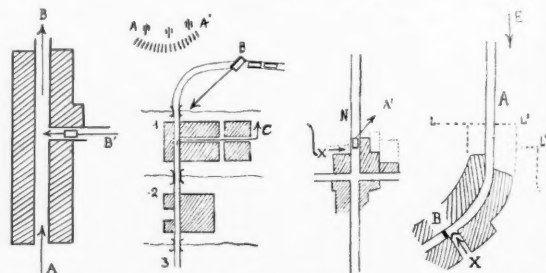
The ambushade at B is good but not eternal. It would have been perfect if it had covered on the south by a wall or a house.

Case No. 3: A village protected by an armored car covering retreat against the advance of infantry. (Sketch No. 3)

This armored car repeats the same maneuver; it appears at the edge of the village, fires, withdraws and starts over again.

Naturally, the infantrymen have left the road and are scattered among the sugar beets. Some have gained the orchards at the north of the village.

The armored car comes out at N to fire towards A' at the moment when infantrymen who have infiltrated



Sketch No. 1. Sketch No. 2. Sketch No. 3. Sketch No. 4.
at X are behind it and pelt it with clods of earth simulating grenades.

Case No. 4: A village held by machine rifles (sidecars) and an armored car. The latter admirably camouflaged, covered with branches, commanding the entrance of the village.

Two armored cars appear, one behind the other. The

defending armored car bombards them, then withdraws because of one against two.

Why? This is not justifiable; the defending car was entirely invisible, not located, and could let them come and shoot them up at 30 meters, a sure thing.

* * * * *

I did not see the silent trap used at maneuvers. It is, however, already classic in Russia.

Motorized engines come, as long as nothing has excited their mistrust, by the road. It is elementary to show them nothing and to let them come in. (Sketch No. 4)

In a village, against an enemy E, the barricade should never be at A visible from a distance. It should be at B, if possible behind an elbow of the road, visible only when one bumps into it, and commanded by a

lateral ambushade X. And, if there is a combination with dismounted men (machine rifles or carbines), they will be invisible and mute, at the outskirts L, L', L'', will never fire until one or more cars have entered the net and will close the exit.

There is a risk of losing in a trap armored cars sent to make contact with a distant enemy, but it is a risk that has to be run.

When about to establish contact with an enemy who expects you, armored cars should be protected by patrols against traps and have the terrain of their advance assured by fire elements.

The occupants of armored cars should know that they cannot attempt anything with impunity, and the foot people should know that they are not without defense.

NOTES FROM THE CAVALRY BOARD

Antiaircraft Mount for Light Machine Gun for Use on Vehicles

THE mount shown in the accompanying photographs, for want of a better name, is designated as the "Cavalry Board Mount No. 1, Antiaircraft". Its use is contemplated on escort wagons, trucks, or other vehicles, where the cavalry light machine gun may be called into use.

The mount consists of a light cradle and a support. The cradle is bolted to the gun, and the fork and pintle are permanently attached to it. The right fork has a friction clamp.

The support for use on an escort wagon is a piece of one and one-quarter inch pipe. The pintle socket is fitted tightly into the upper end of the pipe and is also equipped with a friction clamp for locking the traverse.

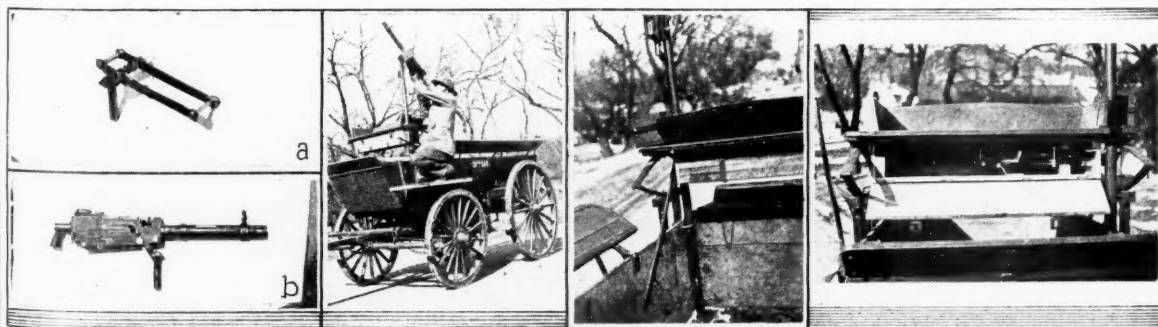
The left side of the cradle has attachments for holding the ammunition box. Two ammunition boxes, each holding one hundred rounds, are carried in brackets on the left side of the wagon seat.

A box is provided under the driver's seat to carry the gun when immediate action is not contemplated.

This expedient also affords protection from the weather. There are no bolts or pins to be removed in order to put the gun into action. Simply take the gun from its box container and slip the pintle into the pintle socket in the upper end of the pipe support. When action is imminent, the gun can be carried mounted in the firing position, being held in place by the friction clamps. An ammunition box may also be carried attached to the cradle; however, this is not recommended as the time required to attach the ammunition box is negligible.

The following procedure must be followed in order to prepare for action: (1) *Gun in box under seat.* Remove gun from box, insert the pintle into its socket in the upper end of the pipe support, adjust the friction clamps, attach an ammunition box, and load. (2) *Gun carried mounted on the support.* Attach an ammunition box, adjust the friction clamps, and load.

The accuracy possible with this mount depends entirely upon the rigidity of the support and its attachment to the vehicle. As indicated in the accompanying photographs the support has rather a long unsupported distance above the seat. However, this gives sufficient stability for satisfactory firing against both ground and aerial targets.



Left to right:—a. Cradle, fork, and pintle for Browning Machine Gun Caliber .30, Model 1919 A1, when used on vehicles for Antiaircraft or other protection. b. Same gun in the cradle, which, with the fork and pintle is permanently attached to it. Showing Browning Machine Gun, caliber .30, Model 1919 A1 mounted on Escort wagon in use against enemy aircraft. Showing support for BMG, Cal. .30, M1919 A1 when used for train protection purposes. Note rear brace to side of escort wagon body. Gun in place in improvised box under seat when its use is not imminent.



BOOK REVIEWS



TASCHENBUCH DER TANKS, by Fritz Heigl. J. F. Lehmann's Verlag, Munich, Germany. Price 15 R. M.

This is the third edition of this handy compendium and has been brought to date as much as anything of this character can be accomplished, especially when it is remembered that War Offices are not prone to publish too much regarding improvements in armored vehicles and tanks.

The first part is devoted to armored cars, beginning in 1900, and states succinctly what has been accomplished since then, including their uses, characteristics, transformation of standard vehicles, armor, tires, multi-wheel drive, dual control, climbing possibilities, large wheel vehicles, such as the "Pavesi" and multiwheel chassis.

This is followed by tanks of the wheel-caterpillar type and caterpillar only. The article on caterpillar chain is very instructive, as is also the wheel suspension. The good and bad points of such chains as the Kegresse, Nyberg, Kornbeck, Chase, steel-band, Renault, Vickers, Carden-Loyd and others are fully stated.

The chapter on visibility, with periscopes, is very good and contains some interesting information.

This is followed by methods for transmitting commands within the tank, gun mounts, and finally the problem of new designs.

Quite some space is also given to armored railroad trains, their history, construction, etc.

The tanks employed by various countries are very well described so far as information is available, but newer types are principally based on surmises.

Then follows tank tactics with examples of operations during the World War, the latter with armored cars used by the Austrian troops in the Balkans.

The book closes with a table covering the armored cars and tanks at present in the service of the various countries, including date of adoption, weight, dimensions, power, speed, armament, armor, gasoline capacity, radius of action and hill-climbing capabilities.

The book should be in the hands of every one interested in motorization and mechanization.

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LEONARD WOOD, by Herman Hagedorn, two volumes; pp. 436, 524. Harper & Brothers, New York, 1931. Price \$10.00.

A notable biography of an outstanding American, a fascinating story of an interesting epoch in our national existence. Based upon a wealth of original source material, filled with a mass of hitherto unpublished official records and private letters, these two volumes constitute an important American historical document. The

author acquitted himself creditably of a herculean task. The stirring record of an eventful and romantic life encompassed within these volumes is a fitting tribute to the memory of Leonard Wood.

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THE RED MAN IN THE NEW WORLD DRAMA, by Jennings C. Wise. 592 pages exclusive of appendices. 54 illustrations. The W. F. Roberts Co., Washington, D. C. \$5.00.

An interesting and absorbing book.

The prints which form the illustrations of the book are, in themselves, of the greatest interest although the explanatory descriptions of the events pictured are not identified.

On the title page, the author calls his work, "A Politico-Legal Study with a Pageantry of American Indian History." The expression sums up the book very well, no matter how unusual the joining of these two aspects may seem.

In the foreword, Colonel Wise outlines his purpose of showing that the development of this nation was greatly influenced by contact with the Indian tribes, and of waking the American conscience and love of fair play so that something may be done to save the remnant of the once mighty Red Men.

The author read a great deal in his preparation of this work, and his reference footnotes are of great value. In later editions, they might well be listed in a bibliography at the end of the book.

An exhaustive and fascinating story of the origin and pre-Columbian history of the Red Race is given in Appendix I (which should be read first) and Chapters I and II.

A comprehensive account follows of the centuries of invasion and aggression by the white settlers, and of deception and betrayal by the government. A number of our presidents, notably Washington and Grant, are credited with attempts to halt the process of spoliation and extermination, but their influence could naturally be only temporary.

The efforts of outstanding Indian leaders to protect their people by organization, through treaties, and by a despairing resort to open resistance, are treated with sympathetic understanding.

Americans may read this book with profit. The subject matter is truly a part of our history; and a part of which we are amazingly ignorant.

It is to be hoped that the author may be successful in stimulating an interest in the American Indian and a desire to assist him to better conditions of life.

Organization Activities

First Cavalry

Ft. D. A. Russell, Texas

This regiment met the many and varied situations incident to the Holiday Season with the traditional Black Hawk efficiency, but without calling on the members of the command for a nickel. A very satisfactory Christmas was held at this station and every child under the age of sixteen was given a present.

The spirit of Christmas Charity extended farther, and every child in the regiment who was in need of clothing and shoes was properly cared for. Having taken care of its own, \$134.64 was turned over to the Marfa Community Chest for relief of the needy.

There has been installed in Post Headquarters a library of the latest publications, including fiction, biographies and books of a military nature. This has met with an appreciative response and is being maintained without assessments on individuals.

"Louie"

"Louie, a brown gelding, height 16 hands $1\frac{3}{4}$ inches, weight 1050 pounds, Preston brand 013X, was foaled at Brawley, California.

Purchased by the Government in 1911 at the age of 6. His purchase price and breeding are unknown.

Louie, upon joining the regiment, was assigned to Troop L, which, with Troop K, was, at that time, stationed at Calexico, California.

He was transferred to Troop I, 1st Cavalry in the latter part of 1919 and to Troop E, 1st Cavalry when the regiment was reorganized in 1920. On September 16, 1920, he was transferred to Hq. Detachment, 2nd Squadron and from there to Headquarters Troop, 1st Cavalry on February 2, 1925. On January 19, 1928 he was transferred to Troop A, 1st Cavalry, of which organization he has been a member until the present time.

During his long period of service Louie has been a consistent and faithful performer in many regimental and a number of Division horse shows, winning many prizes, ribbons and cups. He has always been in demand as an officer's mount.

In his more than twenty years of service he has been stationed with the 1st Cavalry at the following Posts and Camps: Calexico, California; Presidio of San Francisco, California; Camp Harry J. Jones, Douglas, Arizona; Fort D. A. Russell, Wyoming, (now Fort Francis E. Warren), and Fort D. A. Russell, Texas, (formerly Camp Marfa, Texas), his present station. (Stations are shown in their chronological order.)

In December 1922, Louie left Camp Harry J. Jones, Douglas, Arizona with the Regiment on an overland march to Marfa, Texas, a distance of over 500 miles. Louie at this time was 18 years old, yet finished this march, made in mid-winter, in excellent condition. In

1929 at the age of 25, Louie made the 1st Cavalry Division Maneuvers, marching a total distance of over 700 miles, and participating in the Division horseshow after the maneuvers.

Today he is vigorous and active and is in training for horseshow events for week February 20 to 27th."

3d Cavalry (Less 1st Squadron)

Fort Myer, Virginia.

With six events of the coming Fort Myer Society Circus to be participated in by young ladies and children from Washington and vicinity, rehearsal groups have reached such proportions as to tax the capacity of the riding hall during practice hours. By reason of the meetings of the youthful riders and the presence of their interested friends and relatives, Fort Myer has become the center of many social gatherings throughout the week.

Young ladies practicing for the musical ride meet on Mondays, Wednesdays and Fridays from 2:00 until 3:00 o'clock.

Practice in the tandem driving event takes place from 2:00 P. M. to 3:00 P. M. Tuesdays and Thursdays and from 3:00 P. M. to 4:00 P. M. on Wednesdays.

Those riding in the jumping event meet from 3:00 to 4:00 o'clock on Monday, Tuesday and Friday.

4th Cavalry

Fort Meade, South Dakota.

Training Films, depicting action of the Cavalry Squad, mounted and dismounted—in close and extended order, and the method of directing and controlling Artillery Fire, were shown in the Post Theatre on Saturday, February 13th.

Troop B, 4th Cavalry still retains their lead in the Post Bowling League. They have won 4 out of 5 games played.

Troop A, 4th Cavalry is now in first place in the Post Basketball League. They have won 5 of the 6 games played.

The weather for the past week has been much colder with several flurries of snow, country roads are reported in poor condition—traffic flows regularly.

5th Cavalry

Fort Clark, Texas

Fort Clark, Texas, sent a very strong and successful team to San Antonio, Texas to compete in the annual horse show at Fort Sam Houston, Texas on February 23 and 24, 1932.

The "Fort Clark Team" consisted of: Capt. Boudinot, 1st Cavalry Brigade; Capt. Boon, "Team Capt.," Lieut. Thorp, Lieut. Ruffner, Lieut. Carns, Mrs. J. B. Wire, Jr., 1st Sergt. Holz, Sergt. Mundy, Corp. Owens, Corp. Bennett, Corp. Mucciente, and Privates Moluder and Moran, all of the Fifth Cavalry.

The "Fort Clark Team" competed in eighteen (18) classes, winning places as follows: eight first places, four second places, and five third places. A total of seventeen (17) places won out of eighteen classes entered.

Among the outstanding classes won were: "Open Jumping," "Officers' Jumping," "Enlisted Mens' Jumping," "Hunter Class," "Triple Bar," "Officers' Charger," (Gov't Owned) and "Enlisted Mens' Mounts."

14th Cavalry (Less 1st Squadron)

Fort Des Moines, Iowa

The 14th Cavalry held its Organization Day on March 5th, celebrating its 31st Anniversary.

In the morning a gymkhama was held in the Post Riding Hall. Winners in the different events were as follows:

Musical Chairs—Private D. C. Smith, Tr. E,
Sack Race—Private R. V. Barker, Tr. E,
Egg and Spoon Race—Sgt. F. H. Blohm, Tr. E,
Mounted Wrestling—Private G. E. Goddard, Tr. E,
Troop Choice Event—Troop E.

There were four periods of polo played between the Reds and the Blues.

In the evening the Officers and their wives were all present at a regimental dinner held at the Officers Club.

Enlisted men and their guests had dinner in the various organization messes followed by a hop in the post gymnasium.

Steel work on the new War Department Theatre is now practically completed, the brick layers are busily engaged in building up the walls of the building. The whole garrison is looking forward to the time when this building will be completed.

Every Wednesday evening is set aside at the Officers Club for small bore matches, these matches are well attended by the officers and ladies of the garrison and a great deal of interest is being shown.

103d Cavalry, P. N. G.

Philadelphia, Pa.

The results of the calibre .22 rifle match, held in the Armory 50-foot range, during January, 1932, for the Major George A. Schwartz Trophy were as follows:

Troop "B"	2432
Troop "C"	2367
Troop "A"	1880

The individual small bore champion for 1932 is Corporal E. A. Elwell, Troop "B." Corporal S. W. Rawlins, Troop "C," finished in second place.

A .22 cal. rifle match fired on March 17, 1932, resulted as follows:

Second Troop, P. C. C.	2396
103rd Engineers	2202
Upper Darby High School	1755

(did not compete in standing position)

Corporal Sarappo, Co. "F," 103rd Engrs., was high man for all stages, with Mr. Wilbur, Upper Darby, high for the prone and sitting.

Conditions for both of the team matches were the same as for the Chief of the Militia Bureau's Match.

111th Cavalry, N. M. N. G.

Santa Fe, N. M.

Brigadier General Osborne C. Wood, the Adjutant General of the State, has recently written a brief history of the New Mexico National Guard, a digest of which follows:

National Guard history in New Mexico dates back to the Taos rebellion of 1847, when a company was organized to assist United States troops in quelling a revolt in Taos County against the American occupation.

From 1851, when a territorial militia was established by the First Legislative Assembly, to 1861, various organizations of the Territorial Militia were almost constantly in the field engaged in campaigns against hostile Indians.

At the outbreak of the Civil War, several regiments of the Territorial Militia garrisoned army posts from which regular troops had been withdrawn to repel the threatened invasion of the Confederate army from Texas. Two regiments under Colonel Christopher (Kit) Carson participated with the regulars in these operations, which resulted in the expulsion of the Confederate forces.

In 1862, Colonel Carson's regiment, the First New Mexico Cavalry, waged an active campaign against the Navajos. In 1864, Colonel Carson, with several troops of his regiment and the intrepid California Column, subdued the Kiowa and Comanche Indians. The famous battle of Adobe Walls broke the backbone of their resistance.

From 1868 to 1873, the troops of the Territory were often in the field against raiding Indians. There was a respite from 1873 to 1879, with a recrudescence of Apache raids in the latter year.

In 1882, the Territorial Militia was authorized to furnish aid to sheriffs and constables and did this so effectively that the Governor was able to declare the Territory free from lawless elements by April, 1883.

The same latitude was allowed militia commanders with regard to Indian raids in 1885. The Apaches had gone on the warpath again in 1884, and different militia organizations were in the field against them until April, 1886. At the close of that year, there were on the rolls 3 regiments of cavalry and one regiment of infantry.

Active service being less, the militia was gradually reduced until, in 1894, it consisted of one squadron of cavalry and one regiment of infantry. In 1897,

the Territorial Legislature passed a law providing for the National Guard of New Mexico and since that time it has been on a firm basis.

In the Spanish-American War the First New Mexico Cavalry, which at that time consisted of but one squadron, became the Second Squadron of the First United States Volunteer Cavalry, better known as the "Rough Riders," and saw service in Cuba. Among other engagements, they participated in the Battle of San Juan Hill.

When the President called State troops into service on the Mexican Border, New Mexico furnished a Regiment of Infantry and a Battery of Field Artillery. Mexican Border service prepared the New Mexico National Guard for valuable service during the World War in which the First New Mexico Infantry and its Battery of Field Artillery saw active service.

The New Mexico National Guard now consists of a Regiment of Cavalry, the 111th, commanded by Colonel Norman L. King, a Regiment of Engineers, the 120th (less the 1st Battalion) commanded by Colonel Uil Lane, and Battery "A," 158th Field Artillery, commanded by Captain Herbert C. Gray, together with the State Staff Corps and Detachment. The present strength of the New Mexico National Guard is seventy-nine (79) officers, two (2) Warrant Officers, nine hundred and fifty-nine (959) enlisted men and is kept at a high state of efficiency.

Since the World War units of the New Mexico National Guard have been called into the service of the State for strike and riot duty on several different occasions.

The New Mexico National Guard has its annual field-training period of two weeks at Camp Maximiliano Luna near Las Vegas, New Mexico. Camp Luna is named in honor of Captain Maximiliano Luna, a Captain of the First New Mexico Cavalry, who served with the "Rough Riders" during the Spanish-American War and afterwards volunteered for service in the Philippine Insurrection and while on active duty in the Philippine Islands he lost his life in the service of his country.

305th Cavalry

Philadelphia, Pa.

Lieutenant Colonel Sloan Doak, G-3, Hq. 62nd Cavalry Division, paid us a visit on February 3rd. Colonel Doak has been a member of two Olympic teams and Captain of one. The turnout for the meeting was good and members of the Regiment were highly interested in the talk Colonel Doak gave.

The sections which will participate in the Annual Ride commemorating our Regimental Day are busily engaged getting the rough edge of the drill smoothed off, and it promises to be a well-drilled exhibition.

On the night of Wednesday, 24th, we took a rather severe drubbing in a pistol shoot at the hands of a group of experts who are guards at the Girard Trust in Philadelphia. However, they are about the best in town and we don't feel too badly about it. Also, it was our first match of the year, and we hope to do better next time.

306th Cavalry

Baltimore, Maryland

The two-sided map maneuver which was started at the December Conference has been continued through three conferences and will probably be completed at the next conference. This type of instruction arouses more interest among the students than any other form of inactive training. While irregular attendance by commanders of units will greatly increase the difficulties of handling this kind of instruction, it is believed that results can be obtained which more than justify the great amount of work involved in carrying on training of this nature.

It is planned to resume instruction in equitation for the Baltimore Reserve personnel early in April, and the officers are looking forward with pleasant anticipation to getting back in the saddle again.

The 2nd Squadron and Machine Gun Troop, 306th Cavalry

Washington, D. C.

On Tuesday evening, February 2nd, the Kennedy Warren Hotel was a scene of gay festivity when the squadron entertained with a dinner dance. Patrons for the event were Colonel and Mrs. John Philip Hill and Major and Mrs. Harley C. Dagley.

Captain Gustaf Frederick Von Rosen, Military Attaché of the Swedish Legation, was among the guests of honor.

Eighty-three couples attended the dinner, while many others came in later for the dancing.

At recent conferences the squadron has been honored by visits from Colonel George T. Bowman, Chief of Staff 62nd Cavalry Division, Colonel M. S. Jarvis, Infantry, Senior Instructor Organized Reserves, Washington, D. C., Lieutenant Colonel Sloan Doak, Cavalry, Major W. M. Grimes, Cavalry, Office of the Chief of Cavalry.

Inactive training is progressing in a highly satisfactory manner. Ground covered by the 2nd Squadron and Machine Gun Troop between October 1st last and March 1st may be described as follows:

Ten regular conferences have been held, and the subjects covered have been, respectively: Organization; Horses and Horsemanship; Doctrines, Principles and Methods; Estimate of the Situation; Combat Orders; Nomenclature, Care and Use of the Rifle, Pistol and Saber; Machine Rifles; Machine Guns; Scouting; Patrolling and Security.

The average attendance for the ten conferences is 70 persons per conference.

Eight equitation classes have been held at Ft. Myer, Va., on Sunday mornings with an average attendance of 53 persons, per class.

The number of students enrolled in the Extension Courses, March 1, 1932, is 93.

The number of lessons marked:

October	77
November	93
December	120

January	320
February	300
<hr/>	
Total	910

The number of subcourses completed March 1, 1932, is 157.

307th Cavalry

Richmond, Virginia

Interest in the Extension School Courses continue to increase. New enrollments are being received daily.

1st Lieutenant Sam H. Franklin, 307th Cavalry, has been designated to pursue the course of instruction at The Cavalry School during the period March 9th to June 15, 1932.

The Cavalry conferences held in Richmond are drawing a large attendance of officers assigned to other arms.

The following officers of the Regiment have recently been promoted to the grade of First Lieutenant:

Second Lieutenant Sam H. Franklin, Jr.

Second Lieutenant Ludwell L. Montague.

Second Lieutenant Southgate W. Taylor.

Second Lieutenant Louis B. Powell.

Third Squadron and Machine Gun Troop, 307th Cavalry

Norfolk, Va.

Colonel George T. Bowman, Cavalry, Chief of Staff of the 62nd Cavalry Division and Liaison Officer for Organized Reserves at Headquarters Third Corps Area visited Norfolk on February 18th and 19th and made an inspection of Reserve Activities in the Norfolk Area.

A meeting for all Reserve Officers in the area was held at the Princess Anne Country Club, Virginia Beach, Va., on the evening of February 18th. The meeting was preceded by a dinner and sixty-four officers were in attendance. Colonel Bowman was the principal speaker. Following the dinner, the Unit Instructor, Major David H. Blakelock, Cavalry, gave an interesting talk on Supply within the Division. The motion picture "Service of Supply of a Division" was also shown and was well received.

Inactive duty training in the Squadron is progressing very satisfactorily, especially with respect to the Extension Courses. Fifty-six per cent of the officers and men of the Squadron are now enrolled and to March 1st an average of six lessons per student has been completed.

The motion pictures, "The Cavalry Rifle Platoon, its Weapons, Organization and Formation" and "The

Cavalry Rifle Platoon, in Mounted Action" were shown during the January and February conferences and helped make those conferences especially instructive and interesting.

308th Cavalry

Pittsburgh, Pa.

Regimental Organization Day was celebrated in fitting style. Lieutenant Colonel and Mrs. George H. Cherrington were at home to the regiment from six thirty p. m. to seven-thirty p. m. at their home at 5851 Marlborough Avenue, Pittsburgh, Pennsylvania.

At seven-thirty all officers and ladies adjourned to the Pittsburgh Hunt Club House, where an excellent Buffet Supper was served. After supper there was dancing.

The officers and ladies under guidance of Colonel Cherrington, who is M. F. H., Pittsburgh Hunt, inspected the Hunt Stables and viewed among others Colonel Cherrington's registered four-year-old hunter.

A more delightful setting or more appropriate one for a cavalry party would have been impossible to find.

862nd Field Artillery, (Horse)

Baltimore, Md.

The inactive training objective this winter has been to prepare officers for Summer Camp and it is believed that they will arrive in camp this summer better prepared than at any previous time. It is the ambition of Lt. Colonel R. S. B. Hartz, the Regimental Commander, to have every officer of battery grade qualified as expert gunner, the attainment of which will no doubt be unique for a reserve regiment. In January one of the regular conferences was replaced by a meeting of all Reserve officers at the War Memorial Building in Baltimore to hear a lecture by the Corps Area Commander, Major General Paul B. Malone, and in February the program for one of the Conferences was a lecture by Lt. Colonel George R. Harrison, Infantry, on Allenby's Palestine Campaign, a subject most fitting for a Field Artillery regiment which is a component of a Cavalry Division.

With the advent of spring the thoughts of the officers return toward riding and those enrolled in the equitation class are impatient to resume the fortnightly rides at Fort Hoyle, held on Sunday mornings. There is somewhat the same feeling among the pistol enthusiasts who are awaiting with some impatience the completion of the Post Office and Federal Court Building in Baltimore which has in its basement an excellent pistol range of dimensions ample for record practice.

For information about Italian saddles made by Adolfo Pariani, Milan, address the Cavalry Association.